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THE RIVIERA

SKETCHES OF THE

HEALTH RESORTS

OF THE

NORTH MEDITERRANEAN COAST OF FRANCE AND ITALY
FROM HYÈRES TO SPEZIA

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NORTH MEDITERRANEAN COAST OF FRANCE AND ITALY
FROM HYÈRES TO SPEZIA

WITH

CHAPTERS ON THE GENERAL METEOROLOGY OF THE DISTRICT,
ITS MEDICAL ASPECT AND VALUE, ETC.

BY

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PREFACE.

THIS work originated in a series of articles on the health resorts of the French and Italian Rivas, which I wrote for the 'Medical Times and Gazette' in 1876 and 1877. None of these, however, reappear here precisely as they were first published. The sketches of Mentone and Cannes, which were the earliest in print, have been entirely rewritten and much enlarged. The chapters on Nice and Spezia are altogether new, as are the four general introductory chapters, which I hope may prove not the least valuable part of the book. In almost every case meteorological tables founded on the most recent and accurate observations attainable have been introduced, and the topographical descriptions, &c., have been corrected up to the present time, either from my own personal observation, or by the help of friends resident on the spot. I have permitted myself a certain amount of repetition, both with regard to the meteo-

rology and the medical capabilities of the different health resorts, for some readers might consult the book merely with reference to one particular place, and might be disappointed if they found no information on these points in the chapter devoted to it.

Without the assistance of several most kind friends the work, as it now stands, would have been almost impossible for me to produce; and I here specially offer my sincere thanks to Dr Siordet and the Rev. Henry Sidebotham, of Mentone; to Dr Henry Daubeny, of San Remo; to Mr F. Fitzroy Hamilton, of Bordighera; to Dr Nièpce fils, of Nice; to Dr Crucknell and Mr W. J. Lewis, of Oriel College, Oxford; and last, not least, to Mr J. Bruyn Andrews, of Mentone and New York, for their liberal assistance and advice. Mr Andrews has not only helped me by his intimate knowledge of the trees of the district, as well as of native habits, but he has freely put at my disposal his valuable series of unpublished weather observations at Mentone. I cannot omit to mention here how much my dear friend Dr Frank, of Cannes, has stimulated me by his encouragement and approbation.

My first acquaintance with the Riviera was in 1868. Since then for reasons of health I have spent six winters and springs either in whole or part, the last four consecutively, on the North Medi-

terranean Coast. I have at other times visited Algiers, Sicily, Corsica, and Southern Italy. This is my apology for writing this book, which I trust may be of use to my medical brethren.

MENTONE, FRANCE;

Oct., 1879.

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THE RIVIERA.

CHAPTER I.

THE METEOROLOGY OF THE RIVIERA.

IN the later chapters of this work I propose to deal with the individual peculiarities of the health resorts situated along the coast of the Mediterranean between Marseilles and Spezia. In the present and three following chapters I shall consider the general features of the country, the meteorological peculiarities of its climate, its vegetation, and its medical aspect. In this way it will, I think, be easier to make it clear to my readers why the Riviera has obtained not merely a European but also a world-wide celebrity which, as yet, gives no indication of declining.

In consequence of its latitude, which ranges between 43° and 45° N. lat., the sun has much greater power at all seasons of the year than in Northern Europe, and even in mid-winter the use of an umbrella to protect the head from its rays is by no means superfluous. Heat of sun, however, as is well known, does not imply a relatively high temperature of the surrounding air, and the great differences between the temperatures in the sun and

in the shade constitute part of the disadvantages as well as the advantages of the climate. On the one hand, the risk of chill in passing from sun to shade is greater than in northern latitudes,* while on the other hand the sun's heat can be relied on as a source of warmth to an infinitely greater extent than in the north. According to Teyssiere, the mean temperature for the winter of spots exposed to full sunshine is $128\cdot9^{\circ}$ F., and of those in the shade of a northern wall $55\cdot9^{\circ}$ F., giving a difference between the two of 73° .

In spring the numbers are $146\cdot1$ in the sun, and $67\cdot6$ in the shade; difference, $78\cdot5$.

In summer we have $155\cdot1$ in the sun, and $82\cdot9$ in the shade; difference, $72\cdot2$.

In the autumn the temperatures are $139\cdot8$ in the sun, and $64\cdot6$ in the shade; difference, $75\cdot2$.

The mean difference for the whole year is thus $75\cdot2$ Fahr. On the whole it may be stated without much want of accuracy that the mean temperature of the Riviera in the winter and spring is from eight to ten degrees higher than that of England. Thus, to take one example given by Marcet,† the mean monthly excess of temperature at Cannes over that of London‡ at 9 a.m. in 1874–75 and 1875–76 was as follows.

* An exception to this statement must, it would seem, be made in the case of such alpine winter health resorts as Davos, where the contrast between sun and shade is tremendous. "If we sit in the shade," says a recent writer, "Winsor and Newton's best colours freeze into hard little lumps instead of spreading under the brush into flat broad washes; while, if we place ourselves in the sun the vehicle dries almost before we have brought paper and paint together." 'Davos-Platz,' by one who knows it well, 1878.

† 'On the Weather at Cannes during the Season 1875-76,' p. 14, by W. Marcet, M.D., F.R.S., 1877. Longmans.

‡ "Mean of Thirteen Seasons (1861-73)," as given by Strachan in

Mean Monthly Temperatures.

Months.	London, 9 a.m., mean of 13 seasons.	Cannes, 9 a.m., 1874-75.	Excess at Cannes over London.	Cannes, 9 a.m., 1875-76.	Excess at Cannes over London.
November . . .	42·5	54·0	11·5	53·2	10·7
December . . .	40·9	45·2	4·3	46·0	5·1
January . . .	38·5	49·6	11·1	48·6	10·0
February . . .	40·6	44·2	3·6	48·6	8·0
March . . .	41·0	51·0	10·0	53·0	12·0
April . . .	47·7	56·7	9·0	57·5	9·8
Mean . . .	41·8	50·1	8·3	51·1	9·3

It will be noticed in the above table that the mean temperatures at 9 p.m., at London and Cannes, approximate nearest in December and February. That this is true also of the general monthly means for a long series of years is proved by the next table, in which those of London and Nice are compared, though I cannot offer a satisfactory explanation of the fact.

Months.	Monthly mean of 13 seasons at London.	Mean monthly temperatures at Nice for 20 years.	Excess for Nice.
November . . .	43·2	53·8	10·6
December . . .	41·2	48·5	7·3
January . . .	38·7	47·0	8·3
February . . .	41·3	48·4	7·1
March . . .	42·3	51·8	9·5
April . . .	49·9	58·0	8·1
Mean . . .	42·9	51·4	8·48

his papers in 'Journal of Meteorological Society,' July, 1874; October, 1874; January, 1875; April, 1875; and July, 1875.

Another result of the latitude of the Riviera is, that when in mid-winter the sun is south of the equator, the day of actual sunshine is longer there than in the latitudes of Great Britain. The duration of twilight is, as is well known, shorter in the south than in the north, diminishing steadily as the equator is approached, but it is obvious that it is far more important to have the direct than the indirect sunlight, even for the same length of daylight. As a fact, however, in mid-winter there is a slight balance in favour of the Riviera even on the score of twilight. My friend Mr W. J. Lewis, Fellow of Oriel College Oxford, has kindly calculated for me the length of day and duration of twilight in winter for England and Mentone, and his results are embodied in the following table.

Date.	Length of day.				Difference.	Sun within 18° of horizon after actual sunset.	
	England.		Mentone.			England.	Mentone.
	H.	M.	H.	M.	M.	P.M.	P.M.
October 15 . .	10	37	10	53½	+ 16½	7.13	7.7
November 15 . .	8	49	9	30	41	6.23½	6.30
December 15 . .	7	46	8	45	59	6.0	6.12
” 21 . .	7	40	8	43½	63½	6.0	5.54*
January 15 . .	8	20	9	6½	46½	6.11	6.20½
February 15 . .	9	55	10	18	23	6.50¾	6.50½
March 15 . .	11	50	11	44	- 6	7.47	7.33
” 21 . .	12	0	12	0	0	—	—
April 15 . .	13	57	13	16½	- 40½	—	—

Besides its latitude, that part of the Mediterranean coast of the South of France, and the North of Italy,

* The figures for December 21 are calculated for the sun within 15° of horizon after actual sunset.

to which the name of Riviera is applied enjoys a protection from northerly winds owing to the lofty ranges of the Alpes Maritimes which fill up the interval between the Alps of Savoy and the sea in such a way as to make the approach of northerly winds unusually difficult. Reference to a good atlas will readily prove this. The whole coast from Toulon to Spezia is protected by a range of hills at no great distance from the coast, but the eastern portion of the Riviera di Ponente, as well as the Riviera di Levante to the east of that city, are very much less guarded by high ranges than the western half of the Riviera di Ponente, which includes the district between San Remo and Toulon. It is true that the great ranges of Monte Rosa, the St Gothard, and the Splügen rise up far in the rear of Genoa and its neighbouring coast, but between them and the comparatively insignificant hills which fringe the Genoese coast lies the vast plain of Lombardy, over which the cold currents from the Alpine snows can sweep without impediment. In discussing the climate of the Riviera, therefore, it is necessary to keep clearly before one this difference in the amount of shelter enjoyed by the two divisions of the Riviera mentioned above.

Another marked difference between these two consists in the amount of rainfall, and the number of rainy days, the eastern portion getting much more rain, and many more rainy days, than the western. Thus, the mean annual rainfall at Genoa* is 1317 mm.,

* 'Report of the Observatory of the University of Genoa for 1872, embracing the rainfall statistics from 1833-72,' edited by Dr P. M. Garibaldi, Director of the Observatory. I am indebted to Mr Yeats, H. M. Consul at Genoa, for this report, which is out of print.

while at Nice it is only 811, and at Hyères, still further west, 746. As to rainy days, from November to April there are, at Genoa, on an average of forty years, sixty-seven rainy days, while at Mentone there are 43·55, at Nice 36·2, at Cannes 45·85, and at Hyères 37·5; these numbers, be it remembered, being only approximate, as the materials do not exist for comparing the same number of years in each case.

Another element which must be taken into consideration, in forming an estimate of the climate of the Riviera, is the temperature of the surface of the sea, which Dr Marcet has shown* to have a mean excess of temperature of about $12\cdot0^{\circ}$ Fahr. over the minimum temperature of the air; the mean monthly highest temperature of the surface of the sea, during the winter season, from November to April, occurring in November, as the results of two years' observations, though the temperature varied but very slightly from month to month, the widest difference being $1\cdot4^{\circ}$ Fahr.

In the following table, which I have borrowed from a paper of Dr Tripe's,† Dr Marcet's results are compared with those of other observers on the British coast; and it will be at once clear that the temperature of the Mediterranean in winter is much higher than that of the Atlantic or the German Ocean.

* 'On the Weather at Cannes during the Season 1875-76,' p. 27.

† 'On the Winter Climate of some English Sea-side Health Resorts,' 'Quarterly Journal of the Meteorological Society,' No. 26, April, 1873, p. 127.

Mean temperature of the sea (surface) Nov. to March.

Years.	Localities.	Nov.	Dec.	Jan.	Feb.	Mar.	Means.
1856-7	Scilly	51·2°	49·0°	47·3°	49·0°	50·2°	49·5°
1859-60	Seven Stones Light Ship	53·5	52·1	51·2	49·7	49·0	51·1
1852	St Agnes, Cornwall .	53·8	51·9	48·5	48·0	46·9	49·8
1851	Falmouth	52·0	48·0	50·0	48·0	48·0	49·2
1872-4	Ditto (Mr Dymond) .	52·8	50·1	49·2	47·7	48·5	49·7
	Means	52·7	50·2	49·2	48·5	48·5	49·8
1873-6	Off the Coast, Ships' Logs	55·2	...	...	...	...	...
1866	Great Yarmouth . .	46·9	41·2	37·1	39·2	40·6	41·0
1853-4	Scarborough	48·0	43·5	40·5	41·2	42·8	43·2
1874-7	Cannes	61·3	57·4	56·2	55·1	56·0	57·2

As Dr Marcet justly remarks, “it follows that the temperature of the air near the Mediterranean must derive a considerable accession of heat, throughout the winter, from that which is stored up by the water during the summer; and this may be considered as one of the most powerful agents to which we are indebted for the comparatively mild winter temperature of the south of France.” Thus, just as the south and west coasts of Great Britain and Ireland are so largely indebted to the Gulf Stream, or to that part of it known as Rennell’s current, for their mild winters, the north shore of the Mediterranean certainly owes part of its freedom from frost and snow to the slow diffusion of the heat which had accumulated in the sea during the summer. Compared with

Great Britain, or even with the North of France, the Riviera has a very dry climate. It is true that in the autumn and also in the spring there are occasionally three or four successive wet days, on which torrents of rain fall, and the total average rainfall is not much inferior to that of the west of England, but, taken as a whole, the number of fine days is immensely greater, both in summer and winter, than in almost any other part of Europe.

In the following tables I have compared the winter rainfall of Nice, which I have chosen as one that has been accurately recorded for several consecutive years, with that of London, and of some English seaside health resorts. I have also compared the number of fine and rainy days at Nice, and in London, and elsewhere, for the same months, as well as the relative humidity.

Rainfall at Nice, and in England, in inches.

Months.	Nice.*	London.†	Hastings.‡	Torquay.‡	Ventnor.‡	Penzance.‡
November.	5·12	1·63	3·90	4·48	3·89	5·04
December.	4·12	2·03	3·60	4·31	3·01	6·14
January .	3·10	2·52	4·08	4·37	3·84	5·97
February .	1·66	1·51	2·24	2·99	2·41	3·53
March .	2·92	1·82	2·06	2·13	1·87	2·84
April .	3·20	1·33	...	...	...	...

* Teyssie 7 years.

† Strachan (l. c.) 13 years.

‡ Tripe (l. c.) 4 years, 1873-77.

Average number of rainy days in each month.*

Months.	Nice.†	London.‡	Ventnor.§	Hastings.§	Torquay.§
November . . .	7·2	13	17	16	19
December . . .	5·7	15	16	19	19
January . . .	6·0	17	19	19	24
February . . .	5·2	15	16	18	19
March . . .	6·4	16·5	12	18	17
April . . .	5·7	13	—	—	—

Average number of cloudless days, or such as correspond to b || on Beaufort's scale, in each month, Nice and London only.

	Nov.	Dec.	Jan.	Feb.	March.	April.
Nice, 28 years †	14·8 ...	17·8 ...	16·5 ...	15·7 ...	16·1 ...	16·1
London‡ . . .	2 ...	0 ...	1 ...	1 ...	2 ...	6

Mean monthly relative humidity (saturation = 100) Cannes and Mentone combined, and English stations, three years each.

Months.	Cannes and Mentone.¶	Kew.**	London, Camden Town.**	Ramsgate.**	Falmouth.**
November.	71·8	85	88	85	83
December.	74·2	89	89	83	84
January .	72·0	87	90	88	88
February .	70·7	84	89	88	85
March .	73·3	79	83	82	82
April .	74·3

* In England a "rainy" day is now generally understood to mean that at least 0·01 inch fell in the twenty-four hours. In the reports of "rainy days" in the south of Europe I believe all days on which even a few drops fall have hitherto been included under this title. Strictly speaking, $\frac{1}{10}$ th of a millimètre is the smallest quantity usually registered. † Teyssie 28 years. ‡ Strachan 13 years. § Tripe (l. c.).

|| b = "blue," on Beaufort's scale, and implies that less than $\frac{3}{10}$ ths of sky is covered with cloud.

¶ Marcet for Cannes, Freeman for Mentone, each three years.

** Tripe (l. c.).

The above tables call for a few comments. Many people will be surprised to find how much rain really falls in the Riviera during the winter, considering the small number of rainy days. The fact is that very large quantities fall within a few hours or days, and when it rains it generally "pours."* There are three or four successive thoroughly wet days and perhaps nights, and then the weather clears up for some time and the sky becomes bright and cloudless. In proof of this I may cite Mr Home Douglas,† who remarks, that "a continuance of wet broken weather is a phenomenon on the shores of the Mediterranean." He adds—what discontented people do well to remember, and what I wish to be thoroughly understood—"still it does occur."

At the time of these heavy rains the pebbly torrent beds, which seem so harmless to casual passers in dry weather, become turbid, foaming rivers for a few hours at the height of the storm, but they resume their old appearance in a short time, with the exception, perhaps, of having part of their bed traversed by a small stream for some weeks. The

* I registered at Mentone on February 22nd, 1879, 1·76 inch in twenty-four hours, on March 19th 1·78, and on April 7th—8th, within thirty-three hours, 3·20. "F. M. S." at Cannes gives still heavier falls for the same season, 2·04 in December, 1878, 1·82 in February, and 2·61 in April, 1879, all within twenty-four hours. In the Italian lake district heavy falls are not uncommon, but one of 6·50 inches in twenty-four hours, such as occurred at Baveno in the summer of 1878, must be unusual. This quantity was measured by a friend of Mr. Maltby, of Mentone, from whose mouth I have the statement. The most extraordinary fall I have heard of on the coast is twenty inches in one day, which a friend tells me once occurred at Genoa, but I cannot give the date. It may have been in October, 1872, when thirty-one inches were registered during the month.

† 'Searches for Summer,' p. 4.

bulk of the rain simply runs off the face of the country. No doubt it would be better in some respects for the farmers if the rain came oftener, and with less violence, so as to soak in better, and I am not sure that the visitors would be altogether losers either.

The maximum rainfall occurs in October, November, December and March, and the minimum in February; and, as the result of the most reliable statistics I have been able to collect, I find that the months may be arranged nearly in the following order, beginning with that with the highest rainfall, and ending with that with the lowest:—November, December, March, April, January, and February. My statistics for October are imperfect, but such as they are they show that very large quantities (as much as thirteen inches) of rain may fall in that month, and persons arriving in the south towards the end of it must not be surprised if they come in for a few days of wet, which washes off the summer's dust and freshens up the vegetation in a wonderful manner.

The order in which the months may be arranged with regard to the number of rainy days in each is November, December, March, April, January, February. October seems to stand about on a par with April; and there may be eight or nine rainy days in May. The April rains especially are looked for with great anxiety by the farmers of Provence and the Riviera, as on them their future crops largely depend. This fact has given rise to a proverb, quoted by Risso, in the Nice *patois*: “Abrieu es de trenta, se ploughesse trent 'un non faira mau à degun,” the translation of which is “April has thirty days; if it rained the thirty-first it would not harm any one.”

The exact sense, of course, is, "no amount of rain in April can do harm."

The subject of rainfall is sufficiently interesting to excuse my adding a few words with regard to the different distribution of the rainy seasons in Northern Europe and on the Mediterranean. The late Professor Dove, of Berlin, showed that Europe is divided into two distinct "rain zones," of which the southern is a sub-tropical, in which the summers are dry and rainless. The northern zone, on the other hand, enjoys rain at all seasons of the year. Reference to the admirable rain map compiled by Dr Otto Krümmel, and attached to his recent essay 'Ueber die Vertheilung der Regen in Europa,'* will show that the boundary of the two zones runs near the Riviera along the ridge of the Alpes Maritimes, gradually bending northward until it reaches its northernmost limit, about two thirds of the distance between Nismes and Grenoble. The country immediately to the south of this boundary, and as low as the latitudes of Majorca and Naples, roughly speaking, has its maximum of rain in spring and autumn, whereas the region further south, including Southern Spain, Southern Italy, Sicily, Greece, and the coast of Morocco, east of Tangiers, with Algeria, has its maximum of rain in the winter. The reason for the different distribution of rainy seasons in Northern Europe and along the North Mediterranean coast, is, as Dr Krümmel shows (l. c., s. 99), that the moist "equatorial current," or "trade wind" reaches the earth's surface in winter in the latitudes of southern Spain, north Africa, and lower Italy, in spring and

* 'Zeitschrift der Gesellschaft für Erdkunde zu Berlin,' No. 74, 1878.

autumn in those of southern Europe, and in summer only in those of central and eastern Europe. "In the summer, from June to August, southern Europe lies in the track of the northern trade-wind (Tramontana), which explains the rainless character of that season there."

The distribution of rainfall in western and north-western France, on the Dutch, Danish, and Norwegian coasts, and on the east coast of Great Britain, is different; there the maximum rainfall is in the autumn, while on the west coast of Ireland, Scotland, and England the maximum is in winter. As before stated, however, all these parts are liable to rain at any season, and heavy falls are not uncommon in summer, especially in July. This more equal distribution of rain over all seasons in Northern Europe depends "on the position of the latter, in the region of variable equatorial and polar currents" (Krümmel).

Notwithstanding, however, the general conformity of the rainfall of the Riviera, to the rule laid down above, we must remember that in different years it is not always distributed in the same way among the months, and that statements of the average rainfall, for any particular month, may mislead us very much, if we attempt, by their means, to predict what the rainfall will be in the same month of a coming season. Thus, to take a concrete example, in November, 1866, the rainfall at Mentone was only $\frac{27}{100}$ inch, whereas in 1871 it was ten inches $\frac{12}{100}$. In December, 1866, it was two inches, in the same month of 1872 twelve inches $\frac{94}{100}$ inch (Freeman).* Similar variations in amount might be quoted from the reports of the other towns of the Riviera. Sometimes the deficiency

* 'Proceedings of the Meteorological Society,' June 20th, 1866.

of one month is covered by a larger fall in the next, but there may be, also, a succession of two or three abnormally dry or wet seasons, which lead superficial observers to overpraise, or underrate, the climate, just as they happen to have experienced its effects during the short time they were in the country.

* The last three winters, 1875-6, 76-7, 77-8, have been singularly dry, and I am told by a distinguished scientific man, who bases his prediction, I believe, on the theory of a relation between rainfall and sunspots, that the winter of 1878-9 is to be still drier. *Nous verrons*.* As a fact, the total rainfall at Toulon,† for 1877, was only 12·82 inches on 50 days, whereas the mean annual rainfall at Hyères, a few miles to the east, is 27·55 inch (de Beaurégard) on 64·2 days. For the past six months of the present year (1878) the deficiency is slightly greater than in 1877—6·99 inches against 7·62. As it may interest some of my readers to compare the Toulon rainfall of 1877 with that of some of our English stations, I have inserted the following table.‡

	Toulon.	London.	Clifton.	Pen- zance.	Forquay.	Wey- mouth.	Ventnor.	Hastings
Rainfall .	12·82	26·46	38·23	50·39	42·25	40·63	35·95	38·55
Days on which 0·01 or more fell	50	172	188	257	224	193	184	195

* I wrote this in September, 1878. The event has shown how little reliance is to be placed on sun-spots, as the winter 1878-79 has been one of the wettest on record. Some of the facts connected with it will be found in the Appendix at the end of the volume.

† Extracted from the daily weather reports of the British Meteorological Office.

‡ From 'British Rainfall,' 1877, compiled by G. J. Symons, F.R.S.

	Toulon.	Brighton	East- bourne.	Tun- bridge.	Bath.	Great Malvern.
Rainfall . . .	12.82	34.91	39.89	37.23	35.57	29.54
Days on which 0.01 or more fell . . .	50	185	170	176	179	173

The subject of winds is one of special importance in considering a climate, and as it is well known that high winds sometimes prevail in the Riviera, in winter and spring, some general remarks with regard to them are called for here. What is peculiar in the winds of each individual health resort will be noticed further on, in the chapters devoted to its description.

The strongest winds are those from the west and north-west (*mistral*, *maestrale*), and from the south-east, east, and north-east; and of these I should say that the north-west and north-east are the most trying to invalids. The former (*mistral*) is an exceedingly dry wind, which has parted with any moisture it possessed, in sweeping over central France.

Its advent is "always attended with a fall of the barometer" (Marcet), and a great diminution in the relative humidity of the air, and the dryness and fury of the wind often give rise to clouds of dust.

On October 30th, 1878, at Mentone, I made the following observations, which may be worth quoting, as to the drying effect of the *mistral*. The dry and wet bulb thermometers were hung behind a louvred shutter, outside an east window, freely exposed to the air, but sheltered from the direct draught of the wind. After a calm day, on October 29th, it had blown hard all night, and the gale continued

during the next day, October 30th, until 6 p.m., when it completely subsided, the subsequent night being quite calm. There were clouds of dust in the daytime, and the sky was very bright and clear with some cirrho-stratus clouds over the sea. I estimated the force of the mistral at 7-8, 10 being the maximum. In the afternoon of October 30th, at the height of the gale, the following readings were made :

At 2.25 p.m.	. Dry bulb	65.2		
"	Wet "	54.8	. difference	10.5.
At 3 p.m.	. Dry "	64		
"	Wet "	51.5	. "	12.5.
At 3.40 p.m.	. Dry "	61.4		
"	Wet "	47	. "	14.4.

The mistral is more felt the further west you go, though it is by no means unknown as far east as San Remo (Dührssen). From my own observations I should say that it generally indicates a prevalence of northerly currents in Europe, which can only reach the Riviera by turning the western flank of the Alpes Maritimes. Sometimes it appears as "the tail" of a great storm which descends over Europe, and sometimes it blows when there are no disturbances felt in the north of Europe. The fiercest mistral generally blows in March, but a strong north-west wind occurs, once or twice on the average, in each of the winter months; and it may blow with considerable force in April. Some further remarks on the mistral will be found in the chapters on Hyères and Cannes.

The south-east wind, or scirocco, is chiefly important, inasmuch as the heaviest and most prolonged rain usually immediately follows it. Valcourt calls it the "*vent pluvieux par excellence*," and I can quite confirm his statement on looking over my notes of

weather for the last four winters. Still, the south-east wind does not always bring rain, but rain generally follows when it has blown violently for a day or two; exceptionally, it is succeeded by cold bright weather, though this is not common. It chiefly blows in the spring and summer, but there may be two or three days of it in any of the winter months. Easterly winds are generally prevalent over Europe at the same time.

In the winter of 1878-79 I noted three occasions on which there was a violent south-east wind at Mentone, followed by heavy rain. On December 25th it blew hard nearly all day, and the next day it rained the whole day. On January 25th, 1879, the wind and rain came nearer together, the former blowing until about 4 p.m., and the latter beginning at 1 p.m., and continuing the rest of the day and through the night. On March 18th and 19th the south-east wind blew strongly, falling about 5 p.m. on the second day, when rain began, and continued in a steady downpour all the evening, and until 3 a.m. on the 20th.

The curious thing about the south-east wind is that it is not in itself *apparently* a very moist wind, and it raises clouds of dust. I have noticed a difference of $6\cdot0^{\circ}$ F. between the dry and wet bulb when it was blowing fresh.

The same observation has been made by Baron Danckelmann, in South Africa, with regard to the climate of the Herero land, near Whalefish Bay. I quote from an abstract of his paper in the Academy. He states that there, rain comes with east winds only, though the west winds blow straight from the sea, and yet are dry; while the east winds, which have

already passed over high land and lost much of their moisture, are the only ones which bring rain.

I think one form of winter south-east wind in the gulf of Genoa is largely a south wind deflected by the Apennines westward, and, therefore, really an equatorial current, which carries much moisture with it.

The common summer south-east wind, noted by observers, is very probably, as my friend Mr. J. B. Andrews suggests, "a sea breeze, which begins at season that pretty regularly in the south-east in the morning and veers with the sun during the day to reach the south-west in the afternoon." Andrews thinks this veering may be due "to successive heating of the different sides of the mountains and hills which run down towards the sea."

We must look to professional meteorologists for a reliable explanation of the peculiarities of the south-east wind as a rain-bringer on the Riviera.

The east wind proper is not a frequent wind in the winter, but is very common from March to October. It is not such a dry wind as in England, and with its maximum frequency, from March to May, is frequently followed by rain. It occasionally blows with considerable force, chiefly in the spring. It is by no means necessarily the prevailing wind, or the roughest wind in March, as the following figures prove.

At Toulon, in March, 1877, it only blew on seven days, and on only one of these with a force of 6 (12 being the figure representing a gale). In March, 1878, it only blew on five days, and its force only exceeded 5 on two days, when it reached 6 and 7 respectively. On the other hand, the north-west wind, or mistral, blew in March, 1877, on nine days, and

in 1878 on ten days, with a force of 6 and upwards.

This corresponds with Dr Marcet's observation at Cannes in 1874-75, 1875-76, when the main direction of the wind in March was not from the east, but from the north-west, west, and north-east, while the east wind prevailed in April exactly as it did in 1877 and 1878 in Toulon.

The significance of an east wind in April is, of course, decidedly less, as far as health is concerned, than in February or March, as its temperature is higher and it is less cutting.

I am sure any observant person who has spent a spring on the Riviera will agree with me that the east wind loses much of the formidable qualities of its northern congener in that southern latitude.

The north-east wind, or Greco, is more frequent and more severe along the eastern part of the Riviera than the western, and to it Genoa, to a great degree, owes the relative bitterness of its climate. But, whenever it blows, this wind is more or less unpleasant and trying. It is a biting cold wind, often accompanied with sleet, hail, or snow.* Happily it does not occur very often. Teyssie reckons eight days annually for Nice, though this is probably rather a low estimate, as at Toulon, in 1877, there were twenty-one days

* I cannot understand what could have inspired the late Rev. C. Kingsley to write the "Ode to the North-east Wind," which begins:

"Welcome, wild north-easter,

Shame it is to see,

Odes to every zephyr

Ne'er a verse to thee;"

and which ends by calling this horrible wind

"Thou wind of God."

Surely such enthusiasm was worthy of a better cause.

when the direction of the wind is given as north-east, though in no instance did the force exceed 5.

I have compared below the number of days of north-east wind, of any force, which I have noted at Mentone in the winters of 1875-8 with those for the same months, at Toulon in 1877 and 1878.

Month.	Toulon.		Mentone.				
	1877.	1878.	1875.	1876.	1877.	1878.	1879.
November . .	1	1	0	1	0	0	0
December . .	3	3	0	1	0	1	1
January . .	1	0	0	0	1	0	0
February . .	2	0	0	1	1	1	1
March . .	0	1	0	1	2	0	0
April . .	0	0	0	2	1	0	1

The explanation of the discrepancies between my table for 1877 and the official report from Toulon is, probably, that where, as in November and December, north-east wind is reported at Toulon and not at Mentone, the wind blew with so little force as not to attract my attention; and that when this wind is noted at Mentone and not at Toulon, as in March and April, 1877, its place was taken by a northerly current from the west. I have found that on March 2nd and 10th, 1877, the direction of the wind was actually north-east at Mentone and north-west at Toulon. I have, unfortunately, at present, no accurate statistics with regard to the number of days on which the north-east wind blows in the neighbourhood of Genoa, except for the year 1872, but some general remarks on the subject will be found in the chapter on Nervi.

According to Dr Garibaldi, in 1872 there were 309 days in which the direction of the wind was north-east at Genoa during part of the day. By months, the total duration of the wind was equivalent to the following number of days.

Jan.	Feb.	March.	April.	Oct.	Nov.	Dec.						
14	...	10	...	6·5	...	3·1	...	8·1	...	8·1	...	14·2

The north wind, or Tramontana, is less felt on the whole than the other winds previously discussed, owing to the protection of the mountains and hills which skirt the coast. Speaking generally, its influence is inversely as the height and nearness of the latter. Where long valleys run down in a direction due north to south, with very little winding, as, for instance, at Ventimiglia, the north wind may have free access. On the whole, the district west of San Remo is less sheltered from the north wind than that between San Remo and Toulon.

South winds, with the exception of the south-east, are not of great importance in winter. Occasionally the south-west blows with force, but it is not a wet wind, as it is on the south and west coasts of Great Britain and the west coast of France and Spain, its moisture having been deposited in passing over the Spanish Sierras and the Pyrenean districts. In 1877, at Toulon, it blew twenty-four times from January to May, and October to December, and only once with a force of 6, in March. The south wind, in the same period, only blew thirteen times, and never with a force above 5. On the other hand, the west wind blew on forty-five days or nights, and twice with a force of 6, and once with a force of 8. To these westerly gales the name of "mistral" is

sometimes applied, just as to the mistral proper or north-west wind, and some observers believe the dry west and south-west gales to be really deflected mistrals.

The sea breeze is felt all along the Riviera, within about a mile of the sea, on sunny days, from 11 or 12 o'clock in the morning until 3 or 3.30 p.m. At sunset the land breeze seawards immediately sets in.

Before leaving the subject of winds I shall add a few words about the general conclusions at which that indefatigable observer, Mons. J. Teyssiere,* of Nice, has arrived with regard to them during his twenty-eight years' period of note-taking. I think they are broadly applicable, at any rate to the Western Riviera. He finds (1) that throughout the year gentle winds, or those of moderate force, from the southern points of the compass (S.E., S. and S.W.) are of far the most frequent occurrence; (2) that the months with the greatest number of calm days are January and December, and those with the smallest number, September, July, June, May, August, and March; (3) that the predominant violent winds at all seasons of the year are either from the east or south-west, the former being the most frequent of the two; (4) that the windiest months are March, April, May, and October; and lastly, (5) that the mistral is most common in March, though, on the whole, a comparatively rare wind.

The fall of temperature at sunset is a feature in the Riviera climate of which a great deal has been made. It is not, however, peculiar to the Riviera, but is met with, to a greater or less extent, wherever

* "Resumé général par mois des vents diurnes observés à Nice de 1849—1876," 'Nice Medical,' No. 6, 1878.

there is a clear cloudless sky and an atmosphere containing a relatively small amount of aqueous vapour.* When the sun is withdrawn the same kind of effect is at first produced as occurs whenever we pass from sun to shade, an effect directly proportional to the intensity of the sun in that particular latitude. Soon after sunset, however, a second factor makes itself felt, namely, the radiation of heat from the earth into space, and the deposition of dew from the layer of air nearest the ground, owing to the chilling influence of the latter. On this depends the damp feeling experienced at times by persons out of doors at and soon after sunset on the Riviera.

I have borrowed from Dr Marcet's work 'On the Mediterranean Coast of the South of France,' p. 60, 1876, the subjoined table, in which he records an observation made to determine the amount of the fall of temperature at sunset. Three thermometers were used, "one of which, with a blackened bulb, was hanging from a rod projecting horizontally from the railing of a balcony on the first floor" of his house and facing the south. The other two, a dry and a wet bulb, "were placed on the north side of the house in a mahogany perforated box, the arrangement being that adopted by Casella."

* I scarcely know what the author of 'Davos-Platz' means by the following sentence (l. c., p. 14):—"The hour of sunset is feared in this dry pure atmosphere only on account of the sudden change in the temperature, not, as in Italy, because of unwholesome exhalations that accompany the approach of darkness." As far as the winter season in Italy is concerned, at any rate on the Italian Riviera, I never heard of the existence of "unwholesome exhalations that accompanied the approach of darkness," or of any one suffering from the effects of such. The fact of malarious "exhalations" existing in certain parts of Italy *in summer* has no relevancy with regard to the months from November to April or May.

The table illustrates "the remarkable cooling of the temperature of the air during and after sunset, and shows the importance for invalids either of being in doors at that time of the day, or of putting on some extra clothing if out of doors and lightly clad at that hour."

Cloudless sky ; calm atmosphere.	Southern exposure	Northern exposure.		Relative moisture.
Time of experiment.	Black bulb free.	Dry bulb	Wet bulb.	
Nov. 6, 4.5 p.m., before sunset	71.6°	64.2°	55.4°	56.0°
" 4.27 " sunset .	62.6	—	—	—
" 4.40 " after sunset .	63.5	60.8	54.0	62.8
" 6.27 " " .	59.0	57.2	52.2	70.2
" 11.30 " night .	53.6	55.4	*51.8(?)	64.4

On cloudy nights, as every meteorologist knows, radiation from the earth into space is prevented by the clouds, which reflect back the heat towards the earth. Hence neither the upper layers of the earth's surface are chilled nor the air in contact with them, and there is no dew. The danger to invalids at sunset on cloudy nights is, therefore, infinitesimal compared with that on clear nights, though, as the following table shows, even where the element of free radiation is excluded, there is a fall of temperature after sunset, with subsequent rise during the early hours of the night, the thermometer falling again to the minimum of the night towards sunrise.

The minimum thermometer here used was hung within a louvred shutter outside an east window at

* In the original 11.8, evidently a misprint.

Mentone, and the table gives (a) the minimum reading between 4 p.m. and 9 p.m.; (b) the actual temperature at 9 p.m.; and (c) the minimum temperature of the subsequent night. We may in each case assume an initial temperature at 4 p.m. several degrees higher than any of the subsequent readings, though I regret that I omitted to note the actual temperatures.

	Date.			
	Dec. 1, 1878.	Dec. 2.	Nov. 7.	Nov. 19.
(a) Minimum between 4 and 9 p.m.	44	47	46	51·5
(b) Temperature at 9 p.m. . .	47	48·6	48	54
(c) Minimum of night . . .	43	47·8	45	52·4

In concluding this part of the subject, I may mention that Prof. Tyndall, in his admirable lectures on Heat as a mode of motion (edition 1865) at paragraph 495, explains the "*sérein* or excessively fine rain which sometimes falls in a clear sky during the fine season a few moments after sunset," not by the chilling of the air by radiation, but "by radiation from the body (aqueous vapour) itself, whose condensation produces the *sérein*." The explanation given above of the production of dew nevertheless still holds good.

Those interested in the subject should read the last few sections of chapter x, and the earlier sections of chapter xiii, of Prof. Tyndall's work just quoted.

One purely meteorological point may just be alluded to here, namely, the comparative uselessness of the barometer in predicting weather on the Riviera.

New comers from England, who have been used to see rain inevitably follow "a falling glass," especially with westerly winds, soon find that in the south either the glass may fall and no rain follow, or the rain may come without any change in the level of the mercury. The barometer, as I have several times observed, does not necessarily fall before or during the heaviest south-easterly gale, though the next day rain comes in torrents; on the other hand, the north-west wind brings it down without even a drop of rain. I have generally noticed that on the Riviera the mercury begins to fall when the bad weather has arrived, and it continues to fall while the latter lasts, but it may remain singularly uninfluenced by any kind of weather.

The following table, borrowed from Teyssie, gives the mean monthly barometrical pressure, and the absolute highest and absolute lowest monthly pressures for twenty-eight years at Nice.

Barometer reduced to sea level, and 32° F. The heights are given in millimetres.

1849—1876.	General mean.	Absolute maximum.	Absolute minimum.
January . . .	762·66	779·3	735·3
February . . .	762·03	776·4	738·0
March . . .	759·43	775·7	740·0
April . . .	760·49	773·5	740·9
May . . .	760·33	770·1	744·7
June . . .	761·47	770·0	746·0
July . . .	761·31	770·0	751·8
August . . .	761·41	769·9	749·0
September . . .	762·39	772·2	744·0
October . . .	760·75	773·7	735·6
November . . .	760·11	777·0	738·0
December . . .	760·89	777·0	738·6

I will now, having discussed the principal elements of the climate of the Riviera, briefly sum up the positive facts which may be stated generally in favour of it, and point out wherein the differences between the local climates of the individual health resorts consist.

Compared with London as a standard, the mean temperature on the Riviera in winter is from 8° to 10° F. higher; the shortest day is about an hour longer, as far as actual sunlight is concerned; there are about half as many rainy days, and at least four or five times as many bright sunny days; the mean barometrical pressure is higher and subject to less variation; fog and mist are practically unknown; snow, if it falls, as may happen once or twice in exceptional winters, never lies more than a few hours, and prolonged frost, as understood by the inhabitants of northern climates, never occurs, that is to say, it never freezes, except in damp absolutely sunless spots, in the daytime; the barometer rarely falls below 29° — 30° F. at night. The winter 1877—1878 was an exceptionally cold one, and the lowest temperature registered by my minimum thermometer freely exposed to radiation was 30° F., and by a minimum thermometer, in a Stevenson's stand four feet above the grass (Andrews), 29° F. Last winter, 1878—1879, which was one of such prolonged cold over the whole of Europe, the absolute minimum which I registered was 29° F. At Nice, in twenty years Teyssie gives 25.7° F., as the lowest temperature observed.

When we come to consider what it is that causes local differences of climate on the Riviera, we find that differences in mean temperature fail to give a complete explanation of them. There is only at the

outside four or five degrees difference between the monthly mean temperatures of the health resorts from Cannes (and probably from Hyères, if statistics were available) to Nervi.

Below, I have arranged these temperatures for Cannes, Nice, Mentone, and Nervi side by side, and though they have been taken by a number of independent observers, and not even always for the same years or same number of years, the general agreement is very striking. The authorities for each set of figures will be found in the chapters specially devoted to the places named.

	Cannes.	Nice.	Mentone.	Nervi.
November	54·6	53·8	55·2	55·2
December	48·8	48·5	50·5	47·84
January	48·54	47·0	48·8	46·2
February	49·4	48·4	50·4	47·8
March	52·8	51·8	53·4	49·0
April	58·3	58·0	59·22	58·0

Of course it must be borne in mind that every place has several local temperatures, due to the aspect of its different districts and their greater or less exposure to prevailing winds, and the same is true on a large scale of the local temperatures of different parts of an extended coast. Hence, I think, there can be little doubt that we must ascribe the differences between the health resort of the Riviera in point of climate mainly to the greater or less shelter they enjoy from cold winds, chiefly northerly.

The subject of winds has not yet been satisfactorily worked out with regard to the Riviera, and I wish some careful non-medical observer would take the matter

up. We want a number of simultaneous observations at different parts of the coast with regard to direction and exact estimates of velocity by self-registering instruments. At present I do not even know of a single experiment to determine the maximum force of the mistral in lbs. to the square foot.

I am constantly reading and hearing complaints that it is not "perpetual summer" on the Riviera. People seem to expect a wonderful Paradise, and cry out like naughty children when their delusion is exploded. Whence the idea came I cannot discover, at any rate it is false. On the whole, the weather on the north Mediterranean coast in winter is much superior, as I have tried to prove in the former part of this chapter, to that of Northern Europe, but it is "bad," in the sense of having some wet unpleasant weather at some time in every season, and some seasons may be, comparatively speaking, bad throughout. Rainy days and days of wind are unpleasant everywhere, but, as a rule, they cause less annoyance in the south than elsewhere. For a day or two, perhaps, it pours, and the next day the sky is cloudless and continues so, and you are able to sit out of doors again in the fresh air, even in December or January. There is nothing like knowing the worst, and I am the last person to wish to put the Riviera, however much I love it, in too favorable a light, so I shall quote a passage from 'Wintering at Mentone,' by W. Chambers, to show what a perfectly unprejudiced writer thought of one of the worst seasons on record. He spent the winter of 1869-70 (the year of the Franco-Prussian war), which every one will remember was very severe all

over Europe, at Mentone ; and he afterwards expressed himself as follows :—" What we endured, however, from the intermittent cold of the season 1869-70 was not for a moment to be compared to what was experienced at home. And this is the way to estimate a wintering at Mentone [or elsewhere on the Riviera]. We have to think, not so much of what we have enjoyed as what we have escaped." After all, this is no unfavorable estimate of the climate of a region that can be reached from London in thirty-six hours.

Perhaps some of my readers may be inclined to ask whether we can at all predict the character, say, of the coming season on the Riviera. All I can answer is that, until we can foretell the weather over the whole of Europe, we cannot even make a tolerable guess as to what will happen in any particular part of that great area. We can only broadly say that the peculiarities of the Riviera climate, already described, will exist, with more or less modification, next winter and the winter after, but we cannot tell at all what the amount of modification will be one way or the other. Sir J. Herschel, in his ' Familiar Lectures on Scientific Subjects ' (Lecture IV, " The Weather and Weather Prophets," p. 146), said, several years ago, that " no person in his senses would alter his plan of conduct for six months in advance in the most trifling particular, on the faith of any special prediction of a warm or a cold, a wet or a dry, a calm or a stormy summer or winter." And though a writer in the ' Times ' (September 25th, 1878), in a most careful essay on some recent storms, expresses his belief, with reference to this passage, " that predictions of this kind may be regarded as well within the

range of scientific possibilities," he admits that "as yet observations are not made on a sufficiently wide scale, nor have been continued long enough to afford the necessary basis for (such) a system of prediction." The same writer distinctly states that, "as yet, we have not learnt to trace the connection between the weather of one season and that of the seasons preceding and following it;" and in another place, "We cannot form any idea of the weather likely to prevail in one month or season from the most perfect knowledge of the weather which has prevailed during the preceding month or season." To pass from the utterances of an anonymous writer to that of a recognised master in the meteorology of the present day, I will strengthen my position by a short quotation from the 'Elements of Meteorology,' by Professor Mohn, of Christiania (Italian translation by Professor D. Ragona, of Modena, 1878). "The problem" he says (l. c. p. 285) "of accurately deciding on the character of the different seasons (*e. g.* whether the coming summer will be hot, the coming winter proportionately cold) cannot be solved in the present state of our meteorological knowledge. The practical meteorology of to-day occupies itself exclusively with the prediction of the weather for the next day and, properly speaking, only with reference to storms. . . . Even storm signals must not be regarded as safe predictions, but only as warnings, that the state of the atmosphere is threatening." Fortified with the above quotations, and not forgetting the new elaborate daily weather prophecies of the Meteorological Office, and the still more ambitious telegrams of the 'New York Herald,' I feel that no one will accuse me of incapacity if I

refuse to enter the lists of false prophets and predict what kind of winters we are likely to have for the next few years on the Riviera. I think I have shown that no one else is more likely to succeed.

CHAPTER II.

THE TREES OF THE RIVIERA.

THE number of trees which impart a characteristic appearance to the Riviera is not very large. The olive, the orange, the lemon, the cork tree, and the carouba, form the group which mainly attracts the attention of the passing traveller in the winter. Besides these, in the neighbourhood of towns, the date palm, the agave, the Japanese medlar, and, of late years, the eucalyptus, are of some interest. On the hills, and in some districts near the sea, two or three species of pine, of which the umbrella pine (*Pinus picea*) is the most remarkable, are met with. In spring and summer the fig tree, which from November to April is, as has been well said, "a blot on the landscape," puts out its broad green leaves, and large tracts of ground reveal the budding vines, either as true vineyards, or as rows between the olives—

" The mystic floating grey
Of olive trees (with interruptions green
From maize and vine.)*"

I propose to devote a little space to each of the above trees, and I shall make free use of the information contained in that mine of careful research,

* Mrs. Browning, in 'Aurora Leigh.'

Foderé's 'Voyage aux Alpes maritimes,'* in Professor Flückiger's 'An Easter Holiday in Liguria,'† and in Risso's great work,‡ in addition to the observations I have been able personally to make.

"The plant," says Prof. Flückiger, "which above all others determines the appearance of the entire country is the olive tree (*Olea europæa*, Linnæus). Its thick evergreen leaves cover the landscape with their solemn grey, which accords so well with the cloudless sky, the bare mountain tops, and the blue-green sea." Certainly the aspect of the Riviera coast, and in fact of nearly the whole district between Marseilles and Genoa, with the exception of the immediate neighbourhood of Marseilles, and the hilly region (Montagnes des Maures, Esterels) between Toulon and Cannes, would be marvellously transformed if the olives were destroyed. The attraction of olive-wooded scenery often does not make itself felt at first, and one hears it spoken of by newcomers sometimes with a tone of disappointment, but to those who see the olive tree under all its aspects, who sit under its shade and watch the sunlight filtering through its foliage, and the curiously varied forms of gnarled trunks and branches, or who from a distance

* 'Voyage aux Alpes Maritimes, ou Histoire naturelle, agraire, civile et médicale, du Comté de Nice et pays limitrophes, enrichi de notes du comparaisson avec d'autres contrées. Par. Fr. Em. Foderé, Professeur de Médecine légale, &c., à la Faculté de Médecine de Strasbourg, &c., deux volumes. Paris, 1821.

† Translated from 'Büchner's Repertorium für Pharmacie,' vol. xxv (München, 1876), with additional notes by the author, and privately circulated.

‡ Histoire naturelle des principales productions de l'Europe méridionale, 5 vols. Paris, 1826. Par A. Risso, Ancien Professeur des Sciences naturelles au Lycée de Nice.

note the changing colours of its leaves in mass, its charms can scarcely fail at last to win approval.

The olive is supposed by competent botanists to be indigenous to the south-eastern countries of the Mediterranean basin, and to have spread westward at a very early period. Foderé calls it “la vraie plante indigène des Alpes que nous décrivons.” At any rate, the date of its introduction into Italy and Provence from the East, where it was known at the time of the Pentateuch, is not recorded. Risso thinks (l. c., p. 4, vol. 2) that the Phocæans, who founded Marseilles about 717 B.C., may have brought the olive with them. Prof. Flückiger suggests that *Olea europæa* is a descendant of *Olea ferruginea*, the rusty-leaved olive tree of the country between the Upper Indus and the Suleiman mountains bordering Afghanistan.

The traveller who reaches the central Riviera (Nice to San Remo) from the west, observes the greater size of the olive trees as the train carries him further to the east. The largest trees are met with between Villefranche and San Remo. At Beaulieu, the next station beyond Villefranche, there is a well-known monster olive tree (variety Pignola), which measures twenty-three feet in circumference four feet from the ground (Émile Négrin). It is said to have formerly yielded 500 pounds (livres) weight of oil per annum. Risso (l. c., vol ii, p. 34) reckons its age as over a thousand years.

These very large trees are only, however, to be found in the warmest and most sheltered parts of the Riviera, owing to the fact that the severe frosts, which at long intervals have ravaged Provence proper, have killed whole districts of oliveyards. Thus, in 1709,

which was one of the longest and most severe winters on record, and when the harbour of Marseilles was frozen over sufficiently for waggons to cross on the ice, all the olive trees were destroyed. The same thing occurred in the winter of 1788-89, and large numbers were destroyed in the severe winters of 1820, 1829, and 1839, of which that of 1829 was the most severe. The olive appears to be unable to support a temperature below 21° or 22° Fahr., so that the presence of large or even moderate sized trees in any place is a sure proof that this degree of cold has not been attained there. It must be remembered, however, that there are varieties of olive trees which under favorable conditions may attain a considerable height and girth, and others which always remains small, so that the fruit can be gathered without using a ladder. In the district of Aix the small varieties are principally cultivated, and they are reputed to yield the finest quality of oil.

Casual observers would never imagine that there were many varieties of olive tree, and even those who know that such is the case find it no easy matter to distinguish between them. Risso, however (l. c., vol. ii), describes *forty* varieties of *Olea europæa*, and more recently the "Bon jardinier," which does not give a complete list, mentions fifteen varieties as cultivated in France. The kind most common in the Alpes maritimes is that known as Olivier pleureur, (*Olea europæa polymorpha ramis pendulis*). Its vulgar name is, in the Nice dialect, "Aulivié noustral." It attains a height of more than thirty feet, and if the seasons are favorable gives a respectable crop every two years. Its oil is good and keeps well and long. At Cannes I was told this spring (1879) by

a native that the "pleureur" was exclusively cultivated there. In contrast to the pale, grey-green, pendulous foliage of the pleureur, I may mention a variety cultivated between the stations of Le Luc and Carnoulès to the west of Cannes, which has relatively dark green leaves with an upright habit. Unfortunately I do not know its name. Beside the pleureur, the following varieties are often cultivated near the sea:—*O. pignola*, *O. rostrata*, and *O. hispanica*. In the valleys, *O. uvaria*, *O. racemosa*, and *O. rubra* (le caillet rouge) answer best; on the hills, *O. pleureur*, *O. regalis*, and *O. corniola* flourish; and on the highest points, *O. minima*, *O. salièrne*, and *O. præcox* are planted, because of their greater resisting powers.

The olive flourishes in any but the very damp soils, but it prefers a dry and rather stiff soil. At any rate, the finest trees are met with on a stiff soil, though it is said that the best olive berries and the best oil are produced on a moderately light soil. Generally speaking, the soil which suits the vine suits the olive, as is proved by the prevalent custom of planting rows of vines and rows of olive trees alternately with one another. Where, however, the olive trees are large and spreading little can be grown on the same ground, owing to the want of sun. The olives are planted about twenty-five feet apart. Owing to their slow growth they are not propagated by seed, but by planting small branches, or the young stems which spring up round the base of the trunk of an adult tree and which can be detached with a portion of root. The stock thus obtained is invariably grafted (generally in May) with a shoot of the particular variety which the farmer

wishes to cultivate. Raised in this way the olive rarely gives more than half a crop until it is 20—25 years old, and it takes as long again if raised from seed.

Where the olive is grown, as it so often is in the central Riviera, on the hill sides, the ground is formed into step-like terraces, whose width varies with the steepness of the slope; each terrace is laboriously faced with stones, and the expense of maintaining these walls* is a considerable item in the cultivation, not only of the olive, but also of the vine, orange, and lemon, all of which have to be planted on such terraces wherever the ground has more than a gentle slope. After heavy rains it is by no means uncommon for considerable damage to be done to these walls and terraces by landslips. The olive requires no attention as far as watering is concerned, but it wants plenty of manure. At Mentone, well-managed trees—and unfortunately there are many which are not well managed—are dressed every two years, not only with liquid manure (night soil), but also with scrapings of horns and hoofs, and with woollen rags, which are imported in large quantities from Italy, and sold to the peasants by dealers who make it a regular trade, and who have special store-houses for the bales. A trench about a foot deep is dug, in the form of a half moon, at the base of the trunk; the solid manure is deposited first, and the night-soil is poured in on the top. A day is generally allowed to elapse before the trench is refilled. In the spring it is easy to tell which olives have been lately manured by the vigorous crop of weeds, which extract what nourishment they can from

* The term applied to the terrace walls in Italy is *muriccioli*. At Mentone *mazerè* is the usual word (Andrews).

the food intended for the olive. The ground between the olive trees in the warmer parts of the Riviera generally becomes covered after the rains with grass and weeds, of which the *Arum arisarum* and the fumitory (*Fumaria spicata*) are the most prominent. Under the olives also flourish in their particular season the various species of anemone and narcissus, while the violet nestles in the crevices of the terrace walls and among the gnarled roots of the older trees. Every year the ground between the olives should be dug in the spring, and the trees require pruning every second year, while at all times of the year it is good management to remove any dead branches at once. The olive flowers in the warmest regions of the Riviera in April, in the less sheltered districts of the coast at the end of May, or beginning of June, and in the inland valleys even as late as July. The berries ripen and the harvest is collected from November to May. The olive berries grown on the small trees of Provence are gathered by the hand; on the Riviera, however, the peasants knock them down by means of long sticks or by shaking the branches. If the trees are very large, men with naked feet climb the branches and knock or shake the berries down. The fallen berries are collected chiefly by women who grope after them among the grass. In the time of a good harvest a knot of six or eight women, ranged in a semicircle, with their baskets at the foot of an olive tree, forms a very picturesque object. It is interesting to notice that the custom of beating the olives is expressly mentioned in the Old Testament, Deuteronomy xxiv, 20, "When thou beatest thine olive tree, thou shalt not go over the boughs again." Beating the trees,

however, especially late in the season, and if not carefully done, injures the tips of the young twigs. After a sufficient number of olives are collected they are taken on mules or donkeys to the mills to be ground. These mills, which are either worked by water (*moulin à aiga*), by means of an overshot-wheel, or else by cattle (*moulin à sang*), are the property of private individuals, who supply everything necessary for the extraction of the oil, and only require a small *douceur* for the workmen, and the *recens** or residue of the olive paste, after the first and second qualities of oil have been extracted, for their own use. The inside of an olive mill does not present a very interesting appearance. A sombre brown tint pervades everything, brown being the colour of the crushed olive residue. In a mill, which is a good specimen of the kind, there are two storeys, the lower containing the mill and presses for the best qualities of oil, and the upper the mill in which the *recens* is reground, the presses in which the residue is re-pressed, the cauldrons in which the clarifying process takes place, and the storeroom where the *sportini* or bags which hold the paste during pressing are kept when not in use. The mills and presses used for the extraction of the oil are of primitive construction, and appear to have undergone no modification in the last fifty years. The presses are worked by hand by a vertical screw, just like an ordinary linen press.

The mill in which the berries are first crushed differs from that used for recrushing the *recens* or residue in the quality of the stones, which are of a hard, smooth, fine-grained material in the one, and a coarse

* I find the word for residue variously spelt: *reense*, *ressence*, *ressanzo*, *recens*. I have adopted the latter form as the simplest.

grit in the other. The upper millstone revolves on its edge vertically in a groove round the axis of the lower horizontal stone on which the berries are placed. The paste thus formed is next placed in the bags or *sportini*, mentioned above, which, for the best qualities of oil, are made of what looks like hempen cord in thick strands rolled like the straw bands of an archery target. If we imagine two small archery targets of a pliable material sewn together at their edges, and with a round hole of the same size in the centre of each of them, we shall have a fair idea of a *sportino* for first quality oil. The section of such a bag filled with paste would be ovoid. Twelve *sportini* are charged, placed one on the other in the press, and the oil which runs out is carefully caught in wooden buckets. This is the *huile à manger, première qualité*; "cold-drawn" oil unmanipulated in any way. The second quality oil is extracted by re-pressing the paste with the addition of boiling water, which is poured over the *sportini* as the press descends. The water is collected and allowed to stand and cool, and the oil is then skimmed off with a very shallow wooden ladle.

The residue is the *recens*, the miller's perquisite, which is said still to contain a third of the oil. At any rate he takes a good deal of trouble with it. First he regrinds it, then the paste is poured into *sportini* of a much finer and closer quality than before, which are made of reed (*jonc*), and are wider, thinner, and smoother than those used for the best oil. They differ also in having a hole on the upper side of nearly five times the diameter of the lower hole. As they lie empty on the floor they look remarkably like straw hats without the crown. Each holds about three

litres of crushed paste, and when filled *thirty-six* of them, instead of *twelve*, are piled in the press at once, Hot water is liberally poured over the *sportini* during the pressing, and the oil and water are first run into a circular trough agitated by a water-wheel, and then into a long series of quadrangular stone reservoirs, each lower than the previous one, and so arranged that only the surface water can pass from the first to the second, and so on. In these the *débris* of the olive paste gradually deposits, while the oil rises to the surface and is skimmed off. A species of fermentation takes place in the marc, or residue at the bottom of the reservoirs, and more oil is set free. This process is continued, by the addition of fresh water to the first trough, until no more oil rises. Finally, the exhausted kernels are run into shallow open-air tanks, and allowed to concentrate by evaporation of their water. A consistent brown paste is the result, which is cut into cakes about the size of an English "turf." These are piled in heaps and dried. When sufficiently dry they are used as fuel; in fact, the miller heats his cauldron with them. Their ashes, which contain an abundance of potash salts, are sent to the laundry. Occasionally the exhausted olive residue, which largely consists of half-crushed kernels, is employed as manure. Professor Flückiger says, that in this form the *ressanzo*, or residue, "most probable exercises a very long-continued influence, since the olive stones, being only incompletely crushed by the millstones, open up but extremely slowly in the dry soil" (l. c., p. 12).

The miller prepares two qualities of oil from his *recens*. That which comes from the first pressing after regrinding is called *huile de recens*, that which

results from the fermentation of the marc in the reservoirs or *enfer* is called *huile d'enfer*. The clarified *huile de recens* as it reaches the market is almost exactly of the colour and consistence of green-peasoup. It is clarified by heating in copper cauldrons with repeated additions of water. During this process the débris and impurities sink to the bottom of the cauldron and the oil is skimmed off the top. The *huile de recens* is used chiefly for making soap and for lubricating machinery. The *huile d'enfer* is only fit for burning, and, in fact, owing to the larger proportion of hydrocarbons which it contains, it is better adapted for this purpose than the other oils of apparently better quality.

The quantity of virgin oil yielded by 100 litres of healthy olive berries is about 12 litres on the average, and of recens oil 4 litres. The olives from the hills yield about 2 litres per 100 more oil than those from the plain. On the other hand, the olives of the plains give most fruit. I cannot leave the subject of olive mills without mentioning the curious dish called "*brandada*" ("*branda*," the French "*branler*," means, in the Mentonese dialect, "to shake"), which the miller's men sometimes indulge in, and which, I am told, needs "an iron stomach" to digest it. Probably it would be just the thing for Prince Bismarck. The foundation of the dish is salt fish (*stockfish*), from which they remove the bones, and after boiling it to rags stir it or pound it into a paste. An assistant then slowly pours in olive oil while the head cook stirs. The addition of parsley and other herbs, and further stirring to complete amalgamation of the whole, renders the *brandada*, which is essentially a mixture of salt fish and oil, fit for the table. From

an advertisement in a Marseilles paper I find that the *sportini*, or bags of reed, in which the olives are crushed, and which probably become impregnated with some of the constituents of the olive, are offered for sale as manure.

Taken as a whole the olive is by no means a profitable tree. Foderé quotes a Nice proverb to the effect that “*Qui ne possède que des oliviers est toujours pauvre*,” and Risso declares that a first-rate olive crop (*année majeure*) is only met with three or four times in a century, when the big old trees yield as much as 120 kilogrammes of oil.

There are several reasons for the uncertain character of the olive harvest. The rule is in average seasons for one year to give no crop at all, the next a scattered crop, and the third a good one, and then the cycle of three begins again. In a succession of very dry seasons good crops occur at even longer intervals. For example, at Mentone it is more than four years since there was a really good harvest owing to the three seasons of drought in 1875, 1876, and 1877. Even when a crop promises well it may be unexpectedly destroyed by protracted rain, by north winds, by insects, and in Provence by a sudden sharp frost or by snow. Snow, indeed, not only injures the fruit of the olive, but by its weight snaps the branches and so injures the tree itself. This occurred at Les Arcs, department of the Var, on December 14th, 1878 when a correspondent reports “that the disasters caused by the fall of snow are considerable. A large number of olives are mutilated, their largest branches having been broken by its weight.”

The olive suffers from the attacks of two or three species of insects, one of these, the *Cynips oleæ*

(*Tephritis oleæ* (Risso), in patois "*keiroun*"), deposits its eggs in the olive berry at an early stage of its development, so that the larvæ appear at a time when there is a considerable amount of pulp. On this they feed, of course to the total destruction of the berry. Professor Flückiger states that the cynips is not met with in the higher lying districts away from the coast. A fungus, *Dematium monophyllum*, also at times attacks the buds and leaves, and the trees appear as if covered with a black powder, which is called *morfea*. The tree seems to be dead, yet it is not really so, and each year it produces stunted shoots, which are destroyed like the preceding ones. The most curious point is that trees which have for many years been in this condition may suddenly become healthy and give abundant fruit. Happily, this disease is mainly met with in damp localities at the bottom, or in the *culs-de-sac*, of valleys.

The main points to be attended to in the healthy management of olive trees, are to change the crops in the intervening ground from time to time, and in the proper season to give the roots air and manure.

Professor Flückiger (l. c., p. 25) offers some interesting reflections as to the future of the people of the Riviera if the olive trade be menaced with a more strenuous competition than formerly. "At the present time," he says, "the revenue laboriously wrung from the olive tree remunerates the small cultivator very moderately. The only advantage possessed by olive oil over other fat oils is its fine flavour; for other purposes than as food it can be replaced by other fats, so that a considerable portion of the 'olive oil' exported from Italy even consists principally of cotton-seed oil, which has been pressed

in Marseilles. Were olive oil, either in this underhand way, or more openly, gradually excluded from the world's market, what reaction would it produce upon the Riviera? To what plants would the sober olive give place?"

This question is already partly answered by the increased cultivation of the vine, and also of the lemon and orange, along the coast. We trust the day may be far distant when the olive of Provence and the Alpes maritimes becomes extinct. The destruction of olive trees along the coast must even now be considerable, judging from the consumption of the wood for burning at all the health resorts and in the large cities like Marseilles and Genoa. But the strain will probably be gradually relieved by the extension of the use of coal and coke. I suppose there are few woods better fitted for burning than the olive. It is extremely hard and compact, and therefore, in a relatively small cubic space, contains a large amount of heating material. Part of the wood which is sold for fuel is only the dead wood from the annual prunings, the rest means a large number of olive trees destroyed. The process of destruction consists in first lopping and sawing off the main branches and then in blowing up the heavy boles with dynamite. The enormous hold which the olive roots take of the ground makes digging them up too expensive. Olive wood when sawn takes a very good polish, and it is largely used for mosaic ornaments, tables, frames, blotting-books, &c., with which most persons are probably now familiar.

Taken as a whole, I should think the cultivation of the lemon and orange on the Riviera was far more profitable to individual proprietors than that of the

olive. If the situation and temperature are such that these trees can be cultivated at all, they seem, if properly attended to, to bear a pretty certain crop every year. Of the two the lemon, owing to its greater delicacy, which limits its area to the warmest and most sheltered localities, is the most important in a commercial point of view. Before saying anything of the natural history of these two plants, a few remarks on the source and mode of introduction of the Aurantiacæ into Europe may not be uninteresting. The principal species of the genus *Citrus* appear to be four in number, represented by the bitter orange, the sweet orange, the citron, and the lemon. All the varieties of citrons known may be referred to one of these types, or to hybrids between them. Now, these four species were not introduced into Europe at the same time, and according to the learned Gallezio, whose unfinished work* is still the great source of our information on this part of the subject, it was the citron (*citronnier*) which was the first to be cultivated. The citron was probably a native of Media, from which it spread to Persia, was carried by the Jews and Greeks into Palestine and Asia Minor, and thence to Southern Italy, where it arrived about the third century of the Christian era. In North Italy the citron was probably not cultivated until several centuries later, when it became naturalised at Salò, on the shores of the Lago di Garda. Still

* 'Traité du Citrus,' par Georges Gallezio, Auditeur au Conseil d'Etat et sous-Préfet à Savone. Published at Paris, chez Louis Fantin, 55, Quai des Augustins, mdcccx. I have also consulted on this part of the subject the 'Histoire naturelle des Orangers,' par A. Risso et A. Poiteau, ouvrage orné des figures peintes d'après nature, Paris, 1818. There is a new edition, edited by Dubrueil, but I have not succeeded in meeting with it.

later it extended to Mentone and the shores of the Riviera, and it was not until the fifteenth century that it was known in the colder parts of Europe. It is an interesting fact that there is not a single passage in the Bible where the members of the orange family are mentioned. The citron, however, was known in the time of Josephus. The orange and lemon (*limonier*) were probably unknown to the Romans, and Gallesio infers from this fact that the trees were natives of India, south of the Indus and Ganges, and that in the first centuries of the Empire of the Cæsars they had not found their way further north. It seems likely that the Arabs, whose empire was very extensive in the third century, acclimatised the orange and lemon in Syria, Africa, and in some of the Mediterranean Islands, but as late as the eleventh century, according to Jacques de Vitry, Bishop of Accon (St Jean d'Acre), neither the lemon nor orange were known in Italy, France, or any part of Europe. One thing is *absolutely certain* that neither was known on the shores of the Lago di Garda, or on the coast of Northern Italy (Liguria) or Provence, up to the time of the Crusades in the eleventh century.

Soon after the Crusades the orange and lemon are first mentioned in the works of European agriculturalists, but "it was in Italy," says Gallesio, "that their culture made the most progress."

It is probable that the orange was introduced into Provence from the Holy Land by the Crusaders, who sailed from and returned to the port of Hyères. At all events its cultivation had reached such a point at Hyères in A.D. 1566 that the orange groves "presented the aspect of a forest." The most curious part of the history of the orange has yet to be

related. The species we have hitherto alluded to is not the sweet orange, but the bitter orange (*bigaradier*). The sweet orange (*oranger à fruit doux*) was unknown in Europe until the end of the fourteenth century. It is not mentioned in the literature of the period from the tenth to the fourteenth century, and it is uncertain whether it was introduced from the Cape of Good Hope, or, as Risso thinks, from the south of China. In the latter case its introduction into Italy and Provence was probably due to the Portuguese, as the name *portogallo*, applied to the sweet orange in Italy, and *pourtugalié*, in the Nice district, implies. The sweet orange was for a long time chiefly cultivated at Nervi and San Remo. At the latter town, in A.D. 1585, the number of trees and the annual exportation of oranges and lemons had become so enormous that the Town Council had to frame special laws for the regulation of the trade. Since the fifteenth century the cultivation of the "*agrumi*," as the Italians and the natives of the Riviera call the members of the genus *Aurantiaceæ*, has become a staple feature of the country. The orange being a much hardier plant than the lemon or citron is far more often met with along the coast. Thus, at Hyères, Cannes and Nice, and especially at the two latter places, they are met with in abundance, while lemon trees, if they occur at all, do so only in the most sheltered situations. Farther east, from Villefranche to San Remo, the largest number of lemon orchards occurs, and their presence is a proof of the higher temperature and total absence of severe frost of this portion of the Riviera, for the lemons requires greater heat to mature it than the orange, and is much more susceptible to cold. Roughly speaking 2—4 degrees of frost Fahrenheit

kill the lemon, whereas we only hear of orange trees being killed by relatively severe frosts, such as occurred in 1709, 1788-9, and 1829. The slopes between Monaco and Roccabruna, the hill sides and the sheltered valleys round Mentone, and the district of La Colla at San Remo, abound in lemon orchards. To a smaller extent the lemon is cultivated near the sea between Ventimiglia and Bordighera, and on the Riviera di Levante, east of Genoa, in the neighbourhood of Nervi. The orange is not much cultivated on the Riviera for eating purposes. At Cannes and Le Cannet, and also at Grasse, to the north-west of Cannes, it is valued mainly for the flowers, from which orange-flower water is distilled and used both for culinary and pharmaceutical purposes. From the flowers an essential oil, "oil of neroli," is also distilled at Nice and Nervi, and fetches a high price in the market. The sweet orange is chiefly cultivated at Nice. The bitter orange tree is generally grown for the flowers and for the rind of the fruit, to the use of which for making marmalade and candied peel it is scarcely necessary for me to refer.

There is a large number of varieties of the four chief species of the genus *Citrus*, and of hybrids between the orange and lemon, the orange and citron, &c. Thus, Professor Casabona* gives 12 varieties of the sweet orange, 6 of the bitter orange, 15 of the citron (*Citrus medica vulgaris*), and 13 of the lemon (*Citrus limonum*, *citronnier* of the French), without including the limes, shaddocks, or several other extra European varieties which have been classed together

* 'Coltivazione degli Aranci ovvero Agrumi (*Citrus*),' del Prof. Antonio Casabona, Genova, 1869. Piazza: S. Sepulchro, 4, Tipografia del Commercio.

as "limettiers" or "pompelmouses." Many of the varieties, however, as well as the hybrids, are only of botanical interest, or cultivated by amateurs.

Before speaking of the culture of the orange and lemon on the Riviera, I shall enter a little further into the history of the sweet orange (*Citrus aurantium vulgaris*), which is rather curious. We saw above that this now popular fruit was a late arrival in Europe. It was still later in reaching America and the western islands. "The Portugese," says Gallesio, "naturalised it at Madeira, in the Canary Islands, and in all their colonies along the coasts of the Atlantic Ocean; the Spaniards soon conveyed it to America, where in a little while forests of orange trees sprang up everywhere." There appears to be not the slightest doubt that the orange was thus introduced into America from Europe, and that it was not an indigenous plant in the New World. Nevertheless, the orange has increased and multiplied in Central America, and many persons, no doubt, believe that it has existed there from all time. Still, the best sweet oranges are not of American growth, though those of Florida have a high reputation, nor are they to be found on the Riviera. The finest kind, according to a recent writer, is the Maltese,*

* Some persons consider the huge egg-shaped Jaffa oranges the best, but my own small experience of them is by no means favorable. They sell for fifty centimes a piece or higher on the Riviera in the spring. The blood orange (*oranger de Malte, Arancio di Malta sanguigno*, Risso) is much esteemed by some persons. I mention it here to warn against the superstition that the colour of its pulp is due to a graft of the orange on the pomegranate (*Punica granatum*). It has been suggested by Gallesio that it is really a hybrid of the white orange (*oranger franc*) with some Indian species which have a blood-red or wine-coloured pulp. My friend, Prof. W. T. Thiselton Dyer, of

but, unfortunately, it cannot be exported, as it does not ripen properly except on the tree. Next come the St Michael's oranges from the Azores, which mostly reach the London market, and after them those from Majorca. The mandarines, often called "Tangerines," and which were only introduced into Europe from China in 1828, follow next. They are cultivated at Malta, in Sicily, and at Blidah in Algeria; but I think many will agree with me, that putting aside the delicate smell of the rind, they are much inferior to good St Michael's or to Spanish oranges. The latter come next on the list, then the Sicilian oranges, the Neapolitan, the oranges of the Riviera, and lastly, those of Algeria, though I have eaten excellent oranges at Algiers, and much doubt whether Algerian oranges ought not to stand higher in the list.

I believe the culture of the sweet orange on the Riviera is at so low an ebb because the natives are too lazy to take the trouble to introduce good sorts, and to pay proper attention to the subject. They are satisfied with an inferior article, and they think it is good enough for other people. The proof that really good oranges can be grown on the coast is this, that you meet with them in private gardens, at least this is the case at Mentone, where the oranges exposed for sale in the market, and which represent the bulk

Kew, however, to whom I have applied for information of the subject, tells me he knows of no Indian species with a purple pulp. He mentions the fact that Ferrarius, in his 'Hesperides' (A.D. 1646), speaks of oranges as growing in the Philippines, "*purpurei coloris medullâ* [pulp] *quæ uvam sapiat*," p. 429. Prof. Dyer suggests that no doubt the varieties of blood orange, of which more than one is known to gardeners, arose as "sports in the course of cultivation," as have the varieties of many other fruits. He also points out that yellow fruits not unfrequently vary into red.

of the crop, are, on the other hand, very inferior. I was speaking lately to one of the large lemon merchants at Mentone about the badness of the oranges, but his answer was, "They fail, owing to defect in the soil. The natives understand their culture, but they don't answer all the same." But when he went on to say that "the Mentone oranges are beaten in the market by those from Spain and Algeria," I left him with the full conviction that soil had less to do with their failure than half-hearted growing.

The first necessity for the cultivation of the orange and lemon, sufficient warmth and shelter being presupposed, is water. During the summer months, when scarcely a shower of any importance falls to freshen up the drooping vegetation, these trees require to be freely watered once in from 12—20 days, according to soil and locality. On sloping ground, and on sandy soil, like that on which the chief part of the Mentone lemons are cultivated, the roots become dry much earlier than on the level and on the alluvial soil near the sea. Hence, before planting a lemon or an orange orchard, a reliable water supply must be assured, either by wells, tanks, or a running stream. In the case of wells, the water is generally raised to the surface by an endless chain of buckets or "noria," turned by a horse, donkey, or mule, the buckets discharging their contents first into a small tank, and then into an aqueduct, which distributes the water to all parts of the orchard. Tanks are used either to collect and store rain water, or to store the water supplied at intervals to the proprietor of the orchard from a spring or running stream. Of course, unless rain water can be concentrated from a large area of ground and collected in a tank, the

amount that can be obtained in this way, even in wet seasons, is not very large. So the chief use of tanks, at any rate at Mentone, is to collect the weekly allowance of water to which the proprietor has acquired the right, and store it until wanted. The term "weekly allowance" requires explanation. There are certain springs which rise in the hills, and which are compelled to traverse artificial watercourses of masonry and cement to reach the level of the sea. These watercourses are carried at different levels along the sides of the hills, through a number of different properties, into each of which, by a simple arrangement, the water, or part of it, can be diverted. The water is regulated by an official, who, in turn, lets it run through each orchard for a definite time, one hour, two hours, or longer, according to the right of the owner. This right is transferable by purchase, and I believe I am within the truth in stating that £40 is not an excessive sum for the permanent right to one hour's water per week *per annum*. During the season of olive crushing, the rules generally regulating the distribution of water are in abeyance, and the millers have the right to as much water as they need to turn their wheels and for other purposes.

Oranges and lemons are cultivated essentially in the same manner. The most usual plan is to raise a number of stocks of the bitter orange (*bigaradier*) from seed, and to graft them when seven years old with the particular kind required. The grafted trees produce sooner and are longer lived than those raised from seed (*orangers ou citronniers de graine*). The fruit of the latter is, indeed, more esteemed, but they die early from the effects of a fungus which attacks their roots. After grafting it is

about four years before the trees bear fruit. For nursery purposes the young stocks may be kept for years with only a foot or two space between them, but when permanently placed in the orchard lemon trees require to be planted from ten to fifteen feet apart, and orange trees about thirteen feet. The actual distance in practice depends on the locality, the rule being to plant the nearer the more the trees are exposed. Before planting the soil must be well manured with liquid manure, stable manure, hoof-parings, or woollen rags. On sloping ground terraces are prepared, much in the same way as for olives, but narrower, with walls to support the earth. In all cases the trees require to be well manured every two years if stable manure (*fumier*) is used, and every three years if woollen rags. The cost per tree in the case of rags is about one franc for the rags, and one to two sous for trenching round the roots. Each tree requires four kilogrammes of rags.

When, as is not unusual with lemons, the ground under the trees is also used for growing vegetables or flowers, it is not so necessary to manure specially, as ordinary good garden mould is all the lemons need. When grown in orchards the orange, which is a tree of much denser and shadier growth than the lemon, requires the exclusive use of the soil, as too little light penetrates beneath it for other plants to grow in its shade, but it is not true, as has been stated, that it poisons the ground for them. In gardens, where the trees are thinly scattered and there is plenty of space for air and light between them, this objection does not seem to hold good.

The orange is a far handsomer tree than the lemon. Its form is more rounded and elegant, the

leaves are of a darker green, and the contrast between the tint of the ripe fruit and that of the foliage is more marked. The lemon tree has a straggling, untidy appearance, a comparatively thin covering of leaves, branches which bend sharply at acute angles, and an indefinite irregular contour. As far as picturesqueness goes, it is not difficult to decide to which to give the preference.

It takes some years before these trees attain maturity and give their best crop. Foderé sets it down as at least twenty years, but afterwards they go on bearing, under proper cultivation, indefinitely.

I learn that a lemon tree in full bearing will give from 25 to 30 francs worth of lemons per annum. Some trees even yield a crop worth 40 francs. The orange trees grow larger and give more fruit, but the value of the fruit is not so great. It is estimated that a good orange tree will easily bear 2000 oranges. Four thousand is an extremely large crop.

A lemon tree well managed has an average crop of 1000—1500 lemons. Risso and Poiteau state that one lemon tree can bear as many as 8000 fruits in a year, but this must be something quite exceptional. Just as with other fruit trees the crop varies in different years. Bad and good crops alternate. M. Carlès, of Mentone, tells me (February 1879) that it is four years since there was a really good crop, and that the present season has not given "half a crop." The enemies both of the lemon and orange are drought, rough and cold winds, which strip them, and especially the lemon, of their leaves, frost generally, and in summer a blight called *morphée* produced by an hemipterous insect (*Coccus hesperidum*), which chiefly attacks the oranges, and another

(*Coccus adonidîm*) which infests the lemon trees. A fungus (*Dæmatium monophyllum*, D.C.) also attacks their leaves.* The *morphée* appears in April and ravages the trees until July. The greyish-white insects cluster along the midrib of the under side of the leaves, and also on the fruit itself, and they weaken the tree by sucking the sap, while they blacken and disfigure the parts where they lodge by their exuviae and excreta. They are most difficult to get rid of when they have settled in an orchard, for if you destroy the insects themselves the eggs which remain soon reproduce as many as before. Sulphur is useless. The plan which answers best, though it is too tedious to apply to a large number of trees, is to detach the insects from the leaves and branches with a wooden spatula, and then to wash the branches with a strong alkaline ley to destroy the eggs, or a rough brush may be passed over the tree. Good results are said to be obtained by painting the stem and branches with petroleum (Casabona). The best natural cure is a cold winter, according to de Valcourt, but at Mentone I have not been able to notice much effect from this remedy, perhaps because the cold is not sufficiently prolonged. Much may be done to prevent disease by giving the trees plenty of light and air, by pruning, and keeping them well spaced.

The Italian Government has announced its intention of giving in 1881 a prize of 3000 lire (£120) for the

* At Messina, Sicily, a good deal of damage has lately been caused by the destruction of the lemon crops by a fungus (*Fusisporum limonis*), which has been figured and described by Prof. J. G. Briosi, of Palermo, in the reports of the Italian Government. 'Nature,' February 27th, 1879.

best monograph on the structure, vital functions, and diseases of the acid fruits or species and varieties of the genus *Citrus*, and kindred genera, provided that the work succeeds in furnishing some important addition to our present knowledge of these subjects.

I was speaking about this announcement to a very respectable peasant farmer at Mentone, whose lemon trees were suffering from blight, and I expressed a hope that the stimulus of 3000 lire might lead to the discovery of some effectual remedy for the disease in question. "No," he replied, "if they offered 30,000 lire they wouldn't find one. It's the will of Providence." And so he and others fold their hands and do nothing.

The orange flowers in April and May and ripens its fruit from December onwards. At Le Cannet, behind Cannes, in May the orange orchards are white with flowers, and numbers of men and women are engaged in picking them. Since a healthy tree produces three times as many flowers as are necessary for the fruit crop (*Foderé*), it is an advantage to the tree to have those blossoms, which would otherwise only wither and fall off, artificially removed. The process of picking is simple. Sheets are spread under the trees, the lower branches are stripped by women on the ground, the higher by boys or men with naked feet, who mount by short double ladders or "steps." The flowers are sold by weight to the perfumers and confectioners in the neighbourhood, as it is necessary for them to be distilled, or made into bonbons at once before the volatile oil escapes. It is essential that the flowers be picked during dry weather, for rain destroys their perfume. The scent of an orange orchard in full bloom is very powerful and may be

perceived more than a mile away if the wind is favorable.

A bitter orange tree, in full bearing, will give from 20—60 kilogrammes of flowers, while a sweet orange tree only yields from 10—30 kilos. At Cannes in May, 1879, orange blossoms were selling as low as twelve and fourteen sous a kilogramme, whereas, a franc is the ordinary minimum price. This is a result of the present small demand for *articles de luxe* owing to bad times.

It is calculated that a hundred kilos of fresh bitter orange flowers will give, on distillation, about 40 kilos of "eau double," 10 of "eau simple," and 6—7 decigrammes of essential oil (neroli). The same weight of sweet orange flowers only give about half as much neroli. The flowers grown on the hill sides give the most essential oil.

The oranges used for exportation are gathered when they begin to turn yellow, from November onwards, but those picked in February and March cannot be sent long distances by sailing-ships, as they are too ripe to keep. It is said that to have sweet oranges in perfection for eating, they should be allowed to hang on the tree all the summer, and only picked in the ensuing autumn; but without being an orange proprietor oneself it is not easy to test this assertion.

The lemon tree has a much longer period of flowering than the orange. Some authors claim that it flowers all the year round, but my own observation is opposed to this. The Mentone lemons begin to show flower buds at the end of January or beginning of February, and continue to flower during the spring and early summer.

The young lemons begin to ripen in November, and they continue to come on in successive crops until about March, at which time the trees exhibit both flowers and fruit. It is obvious, from the prolonged duration of flowering, that a lemon tree will bear at the same time fruit in all stages of maturity. If either orange or lemon trees, during the drought of summer, are not properly watered every fortnight or so, and they do not succumb for want of moisture, the sap rises in the autumn at the time of the heavy rains, and flower buds appear as early as November, but, as a rule, neither lemons nor oranges flower in November. If lemon trees are sharply cut back, as happened in a case which came under my notice in 1878, where several rows had their tops cut off so as not to impede the view from a new hotel, they will flower in November.

Opinions are divided as to the best time for pruning, an operation which the trees require every two years. Some say prune from August to October, others from November to the early part of February, but I am inclined to think the first period the best. Risso and Poiteau recommend that orange trees shall be pruned in March and April, after the main crop is over. The pruners tell me that their rule is to cut away all the wood which has not borne fruit, and a certain number of young side shoots. The *oranger de graine* (seedling) is injured by having its head pruned. The largest lemon trees on the Riviera attain a height of 15—20 feet. Some of the orange trees are, I think, even larger, but their natural growth is everywhere more or less curtailed by pruning. In the Island of Majorca, where the trees used formerly to be allowed to grow as large

as possible, it is said that they reached the size of a plane tree of medium growth for the South of France.

The most productive species of lemon and one largely grown on the Mediterranean is the Bignetta (*Citrus limonum Bignetta*). Its fruit is the most juicy, and bears transport best, and it almost invariably gives a good crop. The species most cultivated, however, where lemons will grow in the open ground, as on the Riviera, is the *Citrus limonum vulgaris*, or common lemon. Its flowers vary in shape at different seasons of the year, those of the first crop being elongated and larger than those of the second and third crops, which are more or less rounded. The acidity of the lemon varies with each species, independently of culture and climate. The lemon of Mentone and its vicinity is, probably, the best in commerce (Andrews). Among its valuable qualities is its power of keeping during a long voyage. Hence it is largely exported to the United States.

There is some confusion about the distinction between the lemons proper and citrons. In Italy and Provence lemons are called "limoni;" in France they go by the name of "citrons." At Mentone what is meant by "citroni" is the "bigaradier" or bitter orange. But if you inquire of Italians what they mean by "citroni," they seem to be at a loss, and to draw no hard-and-fast line between "citroni" and "limoni." "The lemons," they say, "have finer skins." Risso and Poiteau give the following account of the differences between them:—"Les citronniers diffèrent seulement du limonier (*Citrus limonum*) en ce qu'ils ont les rameaux plus courts et

plus raides ; que ses feuilles sont, en général, plus étroites, et que ses fruits, ordinairement plus gros et verruqueux, ont la chair plus épaisse, plus tendre, et la pulpe moins acide. Mais il faut convenir, ces différences se nuancent et se confondent dans beaucoup de variétés avec le limonier, ou plutôt plusieurs limons à chair épaisse viennent se confondre avec le citron ; de telle sorte qu'on ne remarque plus la ligne de démarcation qui les séparerait."

One distinction, given me by an authority on lemons, was that the citrons proper, which are grown from seed (*citrons de graine*), only give one crop a year, in November, like the orange, while the true lemon, "citron" of the French, bears fruit every month, or, as it was expressed, "*à chaque lune*."

The citron of British commerce, or cédratier of Risso, which is used by confectioners in the candied form, is too large to be ever confounded with the lemon. A single tree only bears about 20—30 fruits a year. This species is not, however, cultivated on the Riviera except as a curiosity.

For household purposes lemons are gathered as required all through the winter season. For export in a wholesale way, however, there are three principal crops, one in the winter, *récolte de la première fleur*, one in the spring, *récolte de la seconde fleur*, and the third and principal one in May, to which the name of *Verdamé* is given.

The lemons are picked by men, who make picking a speciality, and are called "Limonié." Their skill is shown in selecting only such fruit as will just fit and pass through a certain sized ring. The lemons picked from October to the end of June are hence called "*de première bague*," those during July "*de*

seconde bague," and those during August and September "*de troisième bague*." The picker twists off the fruit which lies out of reach of the hand with a cane notched at one end to catch the stem. The fruit is placed in baskets lined with a cloth, the ends of which hang down outside, and they are carried either to the warehouses, or to trucks which hold a larger number, by women with bare feet, who balance the baskets on their heads and steady them by the depending ends of the cloth. The fruit is all cleansed by women before it leaves the orchard, and, as no sorting is required, it is ready for packing as soon as it reaches the warehouse, where it is spread in a long low heap on the floor.

The only preparation which the lemons undergo before packing is to be wrapped each separately in a sheet of a very thin whitey-brown paper, made specially for the purpose at Lyons, and known as "*papier soie*." The wrapping is done by women, whose sole business it is. One woman, in a day or "*journée*" of six hours (9 a.m. to 12 and 2 p.m. to 5), wraps up 1900 lemons, for which she is paid 18 sous, or 9*d*. This is in the winter season. In the summer, when work is active, each wrapper does a double day of twelve hours and gets double pay. To wrap a lemon it is placed in the centre of the paper which is then folded over it and twisted into a screw at each end.

The packing cases are made of thin white wood. They are oblong and divided by a central partition into two square compartments. Each case is first lined with coarse brown paper, called "*papier paille*," and then two or three rows of lemons are laid in and covered with a sheet of "*papier soie*," and the same plan is followed until the case is full. After the

covers have been fastened down the edges of the cases are strengthened with split hazel. The size of the cases varies slightly with the destination of the lemons. Those intended for France hold from 400—450 lemons ; those for North Europe, including Great Britain, 420 ; and those for the United States and Canada 360 lemons. For France the fruit is packed almost ripe, for Northern Europe half ripe, and for America nearly green. The wholesale price of a box of lemons for Northern Europe is about 17 francs. I am told that in an average season the total export to America and Canada from the whole Mentone district is 35,000 cases, and to France and Europe generally 20,000 more. This will give an idea of the importance of the lemon trade in this part of the Riviera. The exports to the United States are made to a large extent by ship direct from the ports of the lemon producing towns.

Unless destroyed by frost, orange and lemon trees are long-lived trees. After the first twenty years, however, it is very difficult to estimate their age. I inquired the age of the trees in a particular lemon orchard, and was told they might be fifty, or they might be a hundred years old. These particular trees, however, were probably planted after the great frost of 1819—20. It is not easy to estimate the age of a lemon tree that has been cut down by examining a section, as the wood is not formed in rings that can be counted.

One of the finest lemon orchards in Mentone, that of M. Carlès in the Turin Valley, was planted in 1830, and the trees are therefore nearly fifty years old. But I am assured that both lemon and orange trees may live to be as much as a hundred and twenty

years old. The orange even bears transplanting as late as the fiftieth year. All that is needed for success is, after it has been removed to its new position, to cut it back sharply, so as to leave nothing but the bare trunk and a certain number of branches proportional to the size of the tree. In three or four years it will have made up a good deal of the loss. In concluding this part of the subject I may say that the wood of the bitter orange and of the lemon tree is used for making the handles of agricultural instruments, while the leaves are eaten with avidity by rabbits.

The vine, though largely cultivated along the north Mediterranean coast of France and Italy between the olives, in terraced vineyards on the hillsides, and on trellises, requires no special mention here. The wine produced is chiefly consumed in the households of the proprietors, and, I believe, not a great deal of it reaches the market. I remember tasting at Hyères an excellent white wine which was made in the neighbourhood and sent as a present to a friend, and I was told that it was impossible to buy it. At Mentone the native wine is dearer than the common wine of the shops. The so-called *Vin du Pays*, a red wine which the peasants drink, costs from 60—75 centimes a litre, but it is probably not a native wine at all. According to Foderé, seventeen kinds of grape are cultivated in the Alpes maritimes, while Risso and Poiteau go so far as to describe *ninety-nine* varieties of grape which are grown in Provence and on the Riviera. At present, one of the best red wines is the Mariverno, and one of the best white wines Valentin. A wine called Rossé from Dolce Acqua is also good.

The trimming and staking of the vines takes place in February and March, and the first shoots begin to appear in March. The vines flower in April or, in a late season, in May; towards the end of August part of the leaves are stripped to assist the ripening of the grapes, and the vintage begins on the hillsides early in September, and later in the month in the plain. Where the soil is sufficiently rich, alternate rows of wheat or barley, and of beans, are planted between the vines, the part occupied by corn one year being filled up with beans the next, and *vice-versâ*. It takes five years before a vine gives a moderate crop, and on the Riviera, owing to the nature of the soil which is very deficient in *humus*, the stocks are exhausted, and require renewing every five and twenty years, or even oftener on very light soils. This is, according to Foderé, the chief peculiarity of the vine culture of the Riviera—the early exhaustion of the stocks; but I am assured that, until the appearance of the *oïdium* disease, there were vine-stocks at Mentone, more than fifty years old. As sulphur was then unknown as a remedy they perished. For the winter visitor, the vineyards are only unsightly, uninteresting patches of barren ground.

The fig tree, although of great economic importance to the natives of the Riviera and the inlying districts, need not detain us long. Only the earliest winter visitors, who arrive towards the end of October, see ripe figs; and in November the leaves begin to wither and fall. From that time until April, only the grey skeleton of the fig tree stands grim and gaunt against the evergreen of the olives, or of the orange and lemon orchards. Yet from the

time when the first figs ripen, in June until November, they form a considerable article of food in the fresh state, and the surplus, dried in the sun, supply the place of bread in winter, and are also an excellent food for cattle. Foderé reckoned that next to the olive the fig tree was grown most largely in the Alpes maritimes. Whether this estimate is still correct I cannot say, but I apprehend that these trees are cultivated much more largely a few miles inland, than close to the coast. At Sospello, which lies north of Mentone in a wide plain, the fig trees occupy, it is said, all the space not covered by olives. Between Cannes and Antibes there are large fig orchards, but the fig tree is met with everywhere, and the total number, even of scattered trees, must be enormous.

The shade of the fig tree is highly valued in the heat of summer, and one or two trees are generally to be met with at the side of each cottage. They are also often planted so as to shade the openings of wells and cisterns. The number of species of cultivated figs, described by Risso and Poiteau, is seventy-two, and they are divisible into early figs, which ripen in May and June, and late figs, which are eaten from August to October or November. Some trees bear two crops, the fruit of the earlier of which is well known by the name of "*Figues fleurs*," and is often enormous in size. The names of the different kinds have a curious sound to English ears. Of early figs, there are the *abicou*, "*daucueire*" (*Ficus Communis Nicæensis*), and *col-de-dame*. The best late figs are the *barnissota*, *bellona*, *pittalusses*, *mussega*, *franciscana* (in September and October), *poucholuda*, &c. Risso and Poiteau consider *Ficus*

labillardiera as the best kind for drying and keeping. *F. bellona* is one of the most delicate sorts, and *F. grisea* is a very good drier. I cannot say that I have tasted any dried Riviera figs equal to those of Smyrna, but some of the small kinds are by no means to be despised.

The cultivation of the fig is extremely simple. Every year a certain number of straggling branches are lopped off, and the earth round the roots is turned up with the mattock. Professor Flückiger notices an interesting point about the assistance rendered to the fig tree by the sea-onion (*Scilla maritima*), which often grows luxuriantly at the foot of the fig tree. "When, in the summer, the blossoms of the squill appear on stalks a metre in height, the insects show a special predilection for them, and spare the ripening figs" (l. c., p. 17).

Perhaps the carouba (*Ceratonia siliqua* of Linnæus) is one of the most striking trees met with on the coast, and where it exists it speaks more forcibly than almost any other tree or plant, except the lemon, in favour of the mildness of the climate. According to Mons. C. H. Martins,* Professor of Natural History at Montpellier, of whom Professor Haeckel of Jena, says in his 'Natürliche Schöpfungsgeschichte' p. 422, that "he belongs to the very small number of botanists who have fully understood the fundamental value of Darwin's theory of descent," the indigenous plants of the Mediterranean coast of the South of France, which are suscep-

* 'Sur l'origine paléontologique des arbres, arbustes et arbrisseaux indigènes du midi de la France sensibles au froid dans les hivers rigoureux,' Montpellier, Boehm et Fils, Rue d'Alger, 10, 1877.

tible to cold, may be ranged in the following order, beginning with the most sensitive :

The Carouba—*Ceratonia siliqua*.

The Tree Euphorbia—*Euphorbia dendroides*.

The Oleander—*Nerium oleander*.

The Dwarf-palm—*Chamærops humilis*.

The Common Myrtle—*Myrtus communis*.

The Laurel—*Laurus nobilis*.

The Pomegranate—*Punica granatûm*.

The Olive—*Olea europæa*.

The Common Fig—*Ficus carica*.

The European Sarsaparilla—*Smilax aspera*.

The Pistachio Lentiscus—*Pistacia lentiscus*.

The Evergreen Oak—*Quercus ilex*.

The Vine—*Vitis vinifera*.

Thus, the carouba heads the list of delicate plants, and we have Professor Martins' authority that it is "struck," as we may say, by the frost of even ordinary winters, and that severe frosts kill it completely ; and yet it looks a sturdy tree, and in warm situations it grows broad and tall, with its deep green shining foliage of pinnate leaflets. It is evergreen, and contrasts strongly with the olive in colour. It loves a dry rocky slope, where it can spread out its roots and fix them into the interstices of the ground. Foderé says it dislikes damp, and loves sea-air and exposure to the sun and to the east and south winds. The two great conditions for its existence are warmth and rocks, and hence the largest number of trees are found on the strip of coast between Villefranche and Roccabruna, where both are fulfilled. There are a good many fine trees at Alassio, and Professor Martins mentions the Fort des Pommettes, near Toulon, and the neighbourhood of Perpignan,

as the only other localities where the carouba grows along the north shore of the Mediterranean. It occurs in Corsica, the Balearic Isles, Spain, Southern Italy, in Cyprus and the islands of the Grecian Archipelago, in Egypt, Syria, and Algeria. Visitors to Algiers will certainly have been struck with the fine row of carouba trees planted along the high road towards Mustapha Supérieur, west of the town. The present species of carouba is, probably, a descendant of the two fossil species *C. emarginata*, and *C. vetusta*, both very closely resembling it.

There are four recognised varieties of the carouba tree, but the most useful is *C. vulgaris* known in patois as "caroub nostral." *C. latissima*, or "loumbarda verdala" has a rougher bark and dwarf habit. The other varieties are *C. siccata* and *C. sterilis*. The latter flowers freely but gives no fruit.

The carouba is dioecious. The flowers are peculiar in springing up directly from the naked bark of the stem and branches and from the insertion of the branches into the trunk, instead of from the axils of the leaves. Foderé and Risso give the flowering time of the carouba as July, and August, but it certainly flowers before this. I myself picked green beans, the produce of this year's flowers, 5—6 inches long, and $\frac{1}{2}$ — $\frac{3}{4}$ inch broad at Eza, near Monaco, on March 30, 1879, and there were trees in flower at Alassio in the third week in April. The beans are ripe in September, and the harvest takes place in October. The carouba is more valuable than the olive, in situations where it succeeds. The Abbé Montolivo, Librarian of the Municipal Library at Nice, tells me that he sells the beans from his trees at Eza, at from fourteen to fifteen francs per 100 kilogrammes. A very good tree may

bring in forty francs a year. Usually, however, there is a good crop only on alternate years.

The carouba is multiplied by offshoots from the root of the mother plant, or from seed. The seedlings are grafted at about four years old. The adult tree manures itself with its dropped leaves and bark. It requires the dead wood to be cut away every two or three years. The heart wood of the trunk after reaching a certain age decays, and the tree continues to nourish itself, like the willow and the chestnut, through the juices of the bark. A full-grown carouba tree may attain a height of nearly forty feet. Its wood is very hard, with straight close fibres, and is deep mottled red on section. Some say, however, that it is not durable when used for cabinet making. The leaves are sometimes used for tanning, owing to the tannic acid they contain. The chief value of the carouba is for its pods, which, under the name of locust bean, are sold for feeding cattle and horses. The Germans call the carouba *Johannisbrod*, St John's bread, from the idea, I suppose, that it was on the locust bean that St John the Baptist fed in the wilderness. I am not scholar enough to decide whether the Greek word ἀκροΐδας, translated "locusts" (St Mark i. 6), will bear this meaning. In any case the carouba bean is unsavoury human food—"a truly leathery dainty" Professor Flückiger calls it—but it is eaten in Sicily and South Italy, and probably in the East. Foderé tells us that he once lived entirely on it for three days, and at the last Siege of Genoa these beans formed the staple food of men and beasts. A considerable amount of the revenue of Cyprus is, I believe, at present, derived from the export of carouba beans. The culture of the carouba on the Riviera seems as if

left to chance. The trees are scattered here and there without any order or plan, while tracts of rocky ground unfit for almost any other plant, and on which the carouba tree would probably flourish and produce good fruit, are not utilised in the least. But the inhabitants of the coast make no more effort in this direction than they did fifty years ago, when Foderé made a similar remark.

A few words on the species of pine which are most characteristic of the Riviera, may not be out of place here, in order to render their discrimination more easy to passing travellers. Beginning with those which grow lowest down and nearest the sea, we have the beautiful umbrella or stone pine (*Pinus pinea*), which artists are so fond of introducing into their pictures of Italy. It is not very widely distributed on the Riviera, and to the best of my knowledge the largest number of specimens is to be found in the plain of Laval between Cannes and the Esterels. There are a few very fine trees in Mons. Dorridan's garden at Mentone. The umbrella pine has a straight stem, throwing out almost horizontal branches. The foliage is of a beautiful green, the bark of a dingy red. Its cones are round.

The white or Aleppo pine (*Pinus halepensis*) is the most common tree in the woods on the lowest hills, for example, at Costabelle near Hyères and on those to the east of Cannes. Its chief peculiarity is its grey smooth stem which is scarcely ever upright, but generally slants considerably. The foliage is not very compact, rather wiry looking, and of a bright yellowish green.

The *Pinus pinaster* or cluster pine, and *P. maritima* grow on all the mountains. The former supplies the

fir cones or "*pommes de pin*" which are used for lighting the olive wood fires. It may attain a height of upwards of sixty feet. The branches are spreading, grey at their base and reddish towards the tip. The bark is brown and deeply fissured. The leaflets are bright green, long, and thickly aggregated. Those of *P. maritima*, on the contrary, are short and of a dark green tint. Its branches are also spreading, but their bark is thin and of a greyish colour. The cones are short and small, rounded at the summit, whereas those of *P. pinaster* are very large, and pyramidal in shape.

The other species of *Pinus* growing on the high mountains inland are *P. escarena*, *P. sylvestris* (Scotch fir), and *P. cembra*.

Among the few other plants which are likely in the future to serve not only an ornamental but an economic purpose on the Riviera, the Eucalyptus, or blue gum of Australia, must be reckoned. Prof. Flückiger regards it as possibly likely to take the place of the olive in some parts. At present it is used only on account of its rapid growth for sheltering other plants in gardens, for shade as a roadside tree, and in some swampy districts (*e. g.*), at the mouth of the Var, west of Nice, to dry the ground and prevent malarious exhalations. The *Eucalyptus globulus*, the species generally cultivated, was introduced into France in 1822, but it is only since 1863 that it has been cultivated on any scale (Flückiger). The oldest eucalyptus in Europe is at Antibes, in the botanical garden laid out by the late M. Thuret, and now in the hands of the French Government. It is ninety feet high and about seven feet in circumference at a man's height from the ground. I have

measured a tree at Mentone, in the garden of Mons. Pernon Philibert, florist, which is seventeen years old and eighty-one feet high. Its girth at five feet from the ground is five feet five inches. Its height would be greater if the top had not been broken off by the wind a few years ago.

There is a row of fine trees in front of the railway station at Nice. At Cannes in the last few years the *Eucalyptus globulus* has been grown so largely as to form a very important feature in the gardens. The Paris, Lyons, and Mediterranean Railway Company is planting a variety of species besides *E. globulus* in the neighbourhood of its stations, but the experiment has not been carried on long enough as yet to see whether the older species is likely to have any formidable rivals. I have lately read that *E. amygdalina* is superior to *E. globulus*.

I think most persons will admit that the Eucalyptus is much handsomer and more striking in the first three or four years after it is planted than later on, for as it grows older it tends to lose its lower branches, and the foliage is inclined to form a head like a broom at the end of a long pole. The dignity of the tree is thus much impaired. Young trees, not exceeding thirty or forty feet in height, are more compact and more graceful. The saplings are, in some respects, the handsomest of all. Their trunk and leaves are of a paler glaucous green, and the leaf buds are tipped with red. The shape of the leaf and branches is different, too, from that of the mature tree. In the sapling, the leaf is ovate, and the branch quadrangular with tuberculated angles; in the tree, the former is gently sickle-shaped, and the latter round and smooth. The

branches, both young and old, are highly elastic and bend almost double before a high wind without snapping, and the wood of the trunk is very hard. The flower appears, at Mentone at least, in the beginning of February. The *Eucalyptus* is a myrtle, and the numerous stamens are protected before maturity by a firm green cap which falls off at the proper time, and leaves them free to ripen their pollen. The leaves when rubbed are very aromatic, owing to the essential oil (*Eucalyptol*) which they contain, to the amount of 2·75—6 per cent. On burning one of the dried leaves, the smell of the oil comes out very distinctly, and if burnt in a room where tobacco has been smoked, reliable authorities affirm that the odour of the latter is not only covered, but removed. *Eucalyptol* is said to have antiseptic and antiperiodic properties. It has been chiefly used in medicine hitherto, as a surrogate for quinine in intermittent fever, owing to its greater cheapness. Whether it really is an efficacious remedy seems rather doubtful, and we have heard very little about its use of late, especially in the Russo-Turkish war, where it would have been invaluable, if really to be relied on. At Nice I am told that the leaves are sold for the preparation of the oil.

The main interest of the *Eucalyptus* on the Riviera, besides the variety which its foliage imparts to the scenery, seems to me to be a meteorological one. As Professor Flückiger says, both of it and the date-palm, *Phœnix dactylifera* (l. c., p. 33) :—"They are indications of the meteorological conditions of this strip of coast which render possible the success of a flora, that is only again to be found several degrees farther south. These two trees proclaim, more

clearly than all the thermometric observations in the land, the true south, where wintry nights in May no longer pinch the promising shoots.”*

The date palm, *Phœnix dactylifera*, just mentioned, is purely an ornamental plant on the Riviera, for though cultivated at Bordighera in large numbers as an article of commerce, it is only even there for the decorations of Palm Sunday at Rome and elsewhere, that its branches are used. The palms do not begin to “give a crop,” *i.e.* to furnish branches for palm Sunday and the Jewish feast of Tabernacles, until they are fifteen years old. To prepare the branches they are tied closely together into a vertical bundle as early as July, and the blanching process which ensues produces ten or twelve of white, and an equal number of half etiolated, fronds from an adult tree. The leaves of the date palm are also used for making hats, and a kind of matting or carpet. Risso says that “a branch is always placed by the side of a young girl after death as an emblem of purity.” The date palm flowers in May, but the dates are of no value even should they ripen, as they certainly do sometimes, for seedling palms spring up round the old trees at Bordighera. As a fact, though they grow to their

* The Eucalyptus cannot be said to succeed in England. Plants in the open air will not stand more than two or three winters, except on the warmest parts of the south coast. I have seen a tree at Exmouth which I am positively assured is eleven years old, but this must be something very exceptional. A writer in the ‘Times’ of October 9th, 1878 (Mr E. T. Beale, of the firm of Carter and Co.), says “The Australian gums are not sufficiently hardy to resist the the extremes of climate in the greater portion of this country, but they might be planted with advantage in Devonshire, Cornwall, the Channel Islands, and the Isle of Wight.” I doubt whether even this is not too sanguine an estimate, for the eucalyptus has not even been a success on the Campagna at Rome.

natural size, they seldom come to maturity. Of late years palm trees have been liberally planted in the various public gardens on the Riviera, as avenues and to decorate hotel and private grounds, but they grow very slowly and it takes many years before their feathery head rises far from the ground. The oldest and finest trees, some of which are forty to fifty feet high, are at Bordighera and Hyères. Those along the Paillon torrent at Nice, which I think were planted about the year 1868, are becoming very handsome. The price of a palm ten years old for transplanting is eighty francs at Bordighera, and the additional cost of transport raises it to at least a hundred francs. I see specimens of *Ph. dactylifera* quoted in a London Seedsman's Catalogue at ten to fifteen shillings apiece, but they cannot be very large.

It is curious that there is now no palm indigenous to the Riviera, the only European species, *Chamærops humilis*, which still exists in Southern Spain, Sardinia, and Sicily, having disappeared in 1841 from its only recent habitat—the shore of Beaulieu between Villefranche and Monaco. Professor Martins ascribes its destruction partly to botanists, and partly to a fall of snow in winter, but I am inclined to doubt the second part of the explanation, as a *chamærops* in my father's garden in Somersetshire has withstood several winters quite unprotected from frost and snow, though sheltered from the north.

The tertiary flora of Europe must have existed under much more favorable conditions of temperature than those we are at present subject to, for thirty extinct species of fossil fan palms have been discovered in the tertiary strata. The other plants of the flora of Provence and the Riviera which have

been found fossil in France, and which are therefore probably indigenous, are the oleander, the myrtle, the pomegranate, the laurel (*Laurus nobilis*), the fig, the European sarsaparilla, the evergreen oak, and the vine (Martins). The aloe (*Agave mexicana*), the prickly pear (*Cactus opuntia*), and the castor-oil plant (*Ricinus communis*), plants too well known to require description, are all exotics. The first of the three, the aloe or agave, is a comparatively hardy plant, and flourishes even in the South of England with but slight protection in winter. It rarely, however, flowers in England, whereas on the Château Hill at Nice, or on the Riviera di Levante, east of Genoa, and in many other situations, the tall stem with its unattractive flowers is to be constantly met with in winter, the result being the death of the parent plant. The aloes are very greedy of earth, and send their roots far and wide, to the detriment of other plants near them. Dr Bennet, in his interesting garden near Grimaldi, Mentone, has even resorted to masonry and cement to restrain the roots of his fine specimens of aloes within proper limits.

At present the agave is not utilised for any purpose except hedging. In Mexico the development of a large quantity of saccharine juice, which takes place just before the plant flowers, is used to prepare a fermented drink called "pulque," and Prof. Flückiger suggests that it might be worth while to try "whether in Italy, where the agave grows so luxuriantly, it could be worked industrially for the production of sugar, alcohol, or vinegar." He also points out that "its enormous leaves are able to yield an excellent fibre for cordage," a hint which may perhaps be taken advantage of when the in-

tellectual development of the natives has progressed for a few centuries longer.

The only other plant that I shall mention, the Japanese medlar (*Mespilus japonica*), need not detain us long. Its large, dark, evergreen leaves, with their serrated edges and whitish, downy undersides, render it an acceptable addition to the gardens of the Riviera. It flowers freely in sheltered situations during the autumn and winter, and the flowers, though inconspicuous, have a by no means unpleasant smell. The fruit ripens from May onwards. It is smooth, yellowish, pear-shaped, and about the size of a small walnut. It has an acid pulp of rather rough taste, but the large smooth stones (two to five in number) form the major part of the fruit. The medlars are sold in the markets for a few sous the kilogramme. I myself consider them much inferior to the fruit of the common medlar tree (*Mespilus germanica*), which grows in England.

With these few remarks on the mespilus, I shall close my sketch of the most important features of the Riviera vegetation. A few other trees and plants, such as the cork oak, have been referred to elsewhere. An attempt to pass in review a large number of more local, or less generally interesting, plants to be met with in the districts dealt with in this volume would render this chapter still more tedious than, I fear, it is as it now stands. In Dr Bennet's 'Winter and Spring on the Mediterranean,' in Moggridge's 'Flora of Mentone,' in Prof. Flückiger's often cited *brochure*, and in several of the monographs on particular health resorts mentioned in other parts of this work, botanical inquirers will find all the information they need. Special monographs of interest worth con-

sulting are two by M. Barlas, of Nice, on Mushrooms and on Orchids, both well illustrated. Risso's often quoted work may be referred to, not only for the vegetable, but the animal productions of the South of France.

CHAPTER III.

THE MEDICAL ASPECT OF THE RIVIERA.

IN the present chapter I shall consider the climate of the Riviera as a therapeutic agent, and discuss, as far as the material at my disposal permits me, the various diseases which it has been found to benefit, or the reverse. And, first of all, it seems to me that there is no idea of which the public mind, and even the mind of many members of the medical profession, requires to be disabused so much as that of a specific action of this particular climate on disease, and especially on phthisis. No doubt the Riviera possesses a remarkable combination of favorable natural conditions not to be met with in many other parts of the world, and certainly not elsewhere in Europe; and this combination undoubtedly works wonders in many cases, if steady improvement from the moment of the patient's arrival on the Mediterranean coast be any criterion. In other cases apparently identical the effect is *nil*, if not injurious. In Chapter I, I have analysed at some length the elements of the Riviera climate. A few lines, summing up its favorable and unfavorable aspects, may not, however, be out of place here, should anyone choose to read the present chapter apart from the preceding.

For this climate we have an average temperature in the winter season (November to May) at least eight

degrees Fahr. higher than that of London; many more bright, sunny, cheerful days; far fewer rainy days; a smaller relative humidity; a longer day of actual sunlight in midwinter; and vegetation active even in winter, so that the idea of winter presented by leafless trees is to a great extent avoided; and, lastly, we have a practical exemption from severe frost, snow, and fog.

The chief drawbacks to the climate are the occasional occurrence of high winds, cold from the north-east and east, very dry from the west and north-west, and of periodical droughts; both results of the geographical position of the Riviera. With regard to the winds, to the greater or less shelter they afford from which, I think, we may fairly ascribe the main climatic difference between the various health resorts; it may be stated with confidence, that no climate exists where storms and violent gales are unknown. It does not require a very large acquaintance with climatological literature, to know how many would-be tropical and subtropical Paradises are at certain seasons ravaged by winds. This is true of Australia, New Zealand, and the Cape, without prolonging the enumeration further.*

The question of drought is one more for the agriculturalist than for the physician, and our modern engineering appliances are quite sufficient to supply the whole coast with water either from the Rhone, or

* Of Middle Island, New Zealand, which comprises the provinces of Canterbury and Otago, Lady Barker, (*'Travels Re-travelled,'* p. 73) says, speaking of farmers:—"Wind is his enemy as well as rain, and within a few hours of being cut, a north-westerly gale will blow the grain out of the ear; or supposing it has been cut, the north-west wind sends his sheaves flying through the air as if they were thistle-down."

from springs taking origin in the higher regions of the Maritime Alps. Nothing but the extraordinary sluggishness of the natives of the coast and their complete want of enterprise, would ever have allowed so much land capable of cultivation, to remain barren for want of water. Local rain cannot be depended on as a certain source of sufficient water, especially with the increased demand of so many growing towns, and it is absolutely necessary to seek a reliable supply at a distance. What the Romans did so well with far less efficient means we can surely carry out in the nineteenth century.

Two incidental drawbacks to the climate of the Riviera, if such they may be called, are the length of the journey required to reach it from the North, and the expense of living when there. In Chapter IV, I shall attempt to show how invalids can reach Cannes or Mentone with comparative ease, and when we compare the journey to the South of France with that to Algiers, Madeira, Egypt, or the Cape, the former appears almost a trifle. Invalids vary in their travelling capacity very much, and their known capabilities must always be taken into account in arranging the details of a journey out.

The expense of living in the South is a very serious item. The prices asked for quite small rooms are often enormous, and at cheap hotels and pensions, on the other hand, visitors are both badly lodged and worse fed. The causes of the high prices at the health resorts of the Riviera are partly (at any rate for France) the oppressive *octroi* or town dues, which are laid on all the necessities of life, partly the general severity of the government taxes, which are levied for the benefit of the country at large, and

partly the shortness of the season, the average stay of each visitor being under six months, while the hotels are closed entirely for at least five months of the year. Whether the desire of the hotel keepers to get rapidly rich is to be considered an element in the question I cannot affirm, though I have an idea that their profits are sometimes quite out of proportion to their outlay.

It is not, however, only the hotel-keepers who make foreigners empty their purses in their behalf. The shop-keepers,—butchers, grocers, haberdashers, &c., equally “put it on,” and their excuses are of the same character as those just suggested.

The drawback of living in a country where an unfamiliar language is spoken is very little felt on the Riviera. English is understood nearly everywhere where visitors are likely to go, and most ladies have acquired a sufficient smattering of so-called “Parisian French” to make themselves partly understood when shopping. In the hotels the waiters are almost invariably German-Swiss or Germans, who speak a broken, but serviceable polyglot.

Before taking a survey of the diseases for which the Riviera has been, or may be, recommended, we may glance at the prevailing diseases of the district as a partial guide to us what cases are least likely to get good from the climate. One observation, however, must be made before drawing conclusions from this source, namely, that hospital statistics must be applied with some caution to private patients, considering especially the “great gulf” which divides the peasant of the south and the northern visitor. Yet, as might be expected, both of these not unfrequently suffer alike, especially from diarrhœa,

tonsillitis, and mild naso-pharyngeal and bronchial catarrhs. It is generally the healthy visitors, *i.e.* those who accompany invalids or come out merely for amusement, who get laid up with these ailments. Diarrhœa is very common in the early part of every season if the weather is warm, and among those who are carried away by their appetites, and eat more animal food than is suited to the climate. It also occurs sporadically at all times among new comers. Perhaps it may be, then, partly a result of chill from want of acclimatisation and proper protection of the skin.

My kind friend, Dr Siordet, of Mentone, writes me with regard to this point:—"The diarrhœa of new comers is often due to fatigue and sudden change to comparatively warm weather, quite as much as to carelessness. I have known some troublesome cases among those who were merely travelling for pleasure and spent a few days here (at Mentone) on their way to Italy."

Acute tonsillitis, as elsewhere, occurs in small epidemics, clearly dependent on meteorological conditions, although we cannot lay our finger on the precise exciting cause. Persons subject to quinsy at home get it sometimes here, and I can recall several such cases which have been under my own care.

Ordinary colds are, as might, *à priori*, be supposed, much less common than in the north. They are, however, occasionally epidemic in raw changeable weather; again, chiefly among the *soi-disant* healthy. At other times severe colds, caught either on the journey down, or on arrival, through imprudent exposure, lay people up for a few days.

Acute articular rheumatism is not extremely uncommon, as might be expected where people are

exposed to considerable variations of temperature. Adults may suffer for the first time, and I remember three cases in my own experience in persons over forty.

Chronic rheumatism, on the other hand, I should say was the exception. Foderé (l. c., Vol. II, pp. 237 and 261) says, "Rheumatism and gout are very rare in the Alpes Maritimes; and I have remarked among the foreign visitors that the climate is very favorable to the cure or relief of arthritic pains."

Epidemic diseases, measles, scarlet fever, and hooping-cough are much less prevalent than in the north, and owing to the mildness of the climate they are much less dangerous. I find scarlet fever, especially, considered by several of my medical friends of large experience on the coast as comparatively harmless, though I should not be inclined to treat a case with less care than in England on that account. Among visitors the word "measles" or "scarlet fever" generally acts like a red flag on a bull, and even elderly persons, who ought to know better, get, as I have seen, into a panic-stricken state, in which they completely lose their heads, and cease to obey the dictates of common sense. Such persons may be comforted by the absolutely unprejudiced testimony of Foderé (l. c., Vol. II, p. 281), "The eruptive fevers are always mild in this country. At the end of the winter of 1802 I observed an epidemic of scarlet fever at Nice, which attacked adults and children alike, but which was not accompanied or followed by any of the bad symptoms which render it a grave affection in cold climates."

Smallpox occurs sporadically at times owing to defective vaccination. At Marseilles the largest number of deaths from infectious diseases is generally

due to it. There was an epidemic at Mentone in the end of April and during part of the summer of 1878. In the winter of 1878-9 cases were reported at Nice in the old town.

Erysipelas of the face is not very uncommon at certain seasons, both among natives and visitors. I saw a severe case, with a temperature over 105° Fahr., in the spring of 1878, in a Swiss waiter, and Dr Marcet mentions his having treated two cases, one very severe, at Nice. (See also the statistics of the Military Hospital at Marseilles, p. 94, and of the Mentone Hospital, Chap. VIII.)

Typhoid fever is not a common disease, and I have not heard of any epidemic of it in the last four years at any of the health resorts described in this book. Cases due to local defects of drainage are met with here and there from time to time. Sometimes the disease is imported from Paris, where there is always plenty of it about, or from Rome, Florence, Venice, or some other Italian town. On the whole, I doubt whether visitors run more risk of catching typhoid fever along the Riviera than they do at English watering places, and certainly the risk is infinitely greater in many English villages and country houses. I do not say this offhand, but with a number of cases in my mind, the circumstances of which are personally known to me. My impression is that the English travelling public abroad is far more on the alert than it is at home with regard to drainage and water. Many ladies carry charcoal filters with them, and some never touch a drop of water that has not been boiled and filtered, and their keen noses at once detect unpleasant smells. I do not blame them for these precautions. Persons taking villas

require to be the most careful, as the proprietors, who are generally *gens du pays*, are less enlightened on these matters than the hotel-keepers, who are, I believe, nearly always Germans or Swiss.

Croup and diphtheria, especially the former, are by no means rare in the larger towns. At Mentone, a few years back, a small epidemic of diphtheria was clearly traced to bad drainage of a particular villa. In the last four years I have not heard of any cases there.

Chronic bronchitis affects the elderly people on the Riviera as elsewhere, but in a much milder form. Where, however, the shelter from cold winds is insufficient, as at Marseilles, bronchitis is common enough, and, as will be seen from the statistics presently to be adduced, all forms of chest affection are abundant there.

Next to diseases of the lungs the commonest fatal diseases of the North Mediterranean coast are meningitis, cerebral hæmorrhage or apoplexy, and other less accurately defined cerebral affections.

Diseases of the heart, as the prevalence of rheumatic fever would lead us to expect, are not at all uncommon.

On the other hand, albuminuria appears to be decidedly rare. Cancer is probably met with nearly in the same proportion as in England.

In the chapters on Nice and Mentone I have enumerated the prevailing diseases in those districts, so that I shall refer my readers, for more detail, to what I have said there.

The following tables give the *mortality* from various diseases at Marseilles during 1875, 1876, and the months of April, 1877, February and April, 1878, and January and February, 1879.

The lists for 1875-6 are compiled by Dr E. Gibert, surgeon to the railway company, and who has kindly furnished me with copies; the others are extracted from a Marseilles paper, in which they appear every month. The months quoted are taken at random as the statistics happened to fall into my hands.

Marseilles, it should be added, must be taken as representing the *worst* aspect of the Riviera, if indeed it should be reckoned as belonging to the Riviera at all. Owing to insufficient shelter it is swept by the mistral, at times when there is scarcely a breath of wind at Cannes, Nice, or Mentone,* and as it is paved with limestone, the dust is considerable. In many respects its climate reminds me of that of Vienna, where all diseases of the lungs are extremely prevalent.†

* The following facts in proof of this statement occurred during the winter of 1878-79:

On December 4th, 1878, two accidents from the violence of the mistral took place at Marseilles ('Petit Marseillais' of December 6th). An omnibus was upset, and a lady was knocked down and injured by a door blown suddenly to by the wind. "La violence du mistral était telle, qu'un des battants de la porte se ferma brusquement et la renversa. On l'a transportée à son domicile toute contusionnée." My note for the wind at Mentone on the same day is "calm; south-east veering to north."

On April 24th, 1879, M. Albert Grévy, the new Governor of Algiers, was unable to start for his post on account of the mistral. "M. le Commandant de la Savoie lui a fait savoir que la violence du mistral était telle que la Savoie ne pouvait pas quitter le bassin." At Mentone I have noted "weather fine; wind south-south-east slight."

Lastly, at Cannes, on May 10th, 1879, there was a "moderate breeze from the north-west in the morning." At Marseilles the local paper reported that "la violence du mistral a été telle, que la partie supérieure du portique élevé sur le cours Belsunce a été enlevée—trois personnes ont été atteintes."

† A short meteorological table for Marseilles will be found in Appendix II.

A.—Table of the principal causes of death at Marseilles in 1875.

Causes of death.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	October.	Nov.	Dec.	Totals.
Smallpox	122	121	167	161	83	38	30	16	2	9	5	2	756
Measles	4	4	12	28	13	14	9	4	...	...	...	...	88
Typhoid fever	31	16	13	12	9	12	16	26	15	29	19	11	209
Mucous fever (? typhoid) .....	...	...	...	...	4	4	5	4	5	2	5	...	29
Anæmia	8	7	8	12	6	8	6	7	9	9	9	10	99
Angina	4	3	3	7	5	4	4	1	3	6	2	7	49
Croup	2	8	6	6	7	3	4	3	4	5	6	12	66
Diseases of lungs ...	346	246	279	216	171	151	167	146	141	178	185	310	2536
Diseases of brain ...	87	99	99	83	93	91	70	95	68	71	66	85	1007
Diseases of liver	4	4	9	4	8	7	12	7	7	6	14	11	93
Diseases of digestive tract	38	30	38	36	58	88	130	126	89	97	50	55	835
Other chronic diseases	57	51	43	41	38	42	30	40	42	55	30	36	505
Other acute diseases..	17	22	30	25	26	31	19	22	18	21	27	27	285
Heart disease	37	25	29	33	20	29	19	21	14	21	16	27	294

B.—Table of causes of death at Marseilles in 1876.

Death causes.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	October.	Nov.	Dec.	Totals.
Smallpox	6	7	3	...	6	...	1	...	...	...	...	1	24
Measles .....	...	...	...	...	...	...	1	1	...	...	...	...	2
Scarlet fever .....	...	...	...	...	...	3	4	3	4	...	1	...	15
Typhoid fever	21	12	10	9	9	23	54	73	60	52	57	32	412
Mucous fever	1	1	2	10	5	7	5	6	7	6	6	...	56
Intermittent fever, (pernicious)	2	...	...	1	...	...	5	3	6	2	1	1	21
Anæmia	8	6	6	8	9	10	8	4	8	13	12	7	99
Angina	6	6	6	5	5	5	1	6	8	9	8	5	70
Croup	8	6	10	2	10	3	3	5	4	4	6	2	63
Brain diseases	83	93	96	115	89	118	140	134	104	105	112	99	1288
Lung diseases	277	282	261	235	183	180	148	143	159	168	317	207	2560
Diseases of digestive tract	32	44	43	43	51	109	216	248	123	86	65	50	1110
Liver diseases	8	4	1	9	6	7	8	8	5	12	5	8	81
Ascites	4	3	3	...	2	1	3	...	...	1	1	1	19
Dropsy .....	...	2	2	1	1	3	1	4	...	2	1	1	18
Heart disease	32	27	18	27	24	17	23	27	22	23	24	27	291
Cancer	7	8	17	11	12	8	21	11	12	13	10	13	143
Alcoholism	2	...	...	1	...	1	1	1	1	1	2	...	10
Other chronic diseases	31	31	18	13	6	13	17	20	9	11	21	12	202
Other acute diseases.	24	30	21	26	22	26	18	17	26	28	32	23	293
Totals	552	562	517	516	440	534	678	714	558	536	681	489	6777

Note to Table A.

The 2536 cases of death from disease of the respiratory tracts are thus distributed :

1144 chronic bronchitis and phthisis.	
1392 acute cases.....	{ 394 bronchitis. { 875 pneumonia. { 53 pleurisy. { 41 hooping-cough. { 29 pulmonary congestion.

Of the 835 deaths from diseases of the digestive tract, the larger number were in young infants; 619 from intestinal catarrh alone.

Note to Table B.

The 2553 cases of death from diseases of the respiratory tracts are distributed thus :

Chronic diseases, 1222	{ laryngitis . . . 25 { bronchitis . . . 235 { phthisis . . . 914
Acute diseases, 1331...	{ hooping-cough . . 38 { bronchitis . . . 361 { pneumonia . . . 779 { hæmoptysis . . . 12 { pleurisy . . . 52 { pulmonary congestion 61 { other affections . . 28
Diseases of the brain . . .	1288
Acute, 1174...	{ infantile convulsions . . 315 { meningitis . . . 330 { cerebral hæmorrhage . . 337
Chronic, 114	{ cerebral softening . . . 56 { paralysis . . . 42 { other affections . . . 16

C.—Table of the mortality at Marseilles (population 318,868) and Toulon (70,510).

MARSEILLES.	Smallpox.	Measles.	Scarlet fever.	Erysipelas.	Typhoid fever.	Bronchitis.	Pneumonia, all forms.	Phtisis.	Pleurisy.	Heart disease including aneurism.	Cancer, all forms.	"Dropsy."	Albuminuria.	Enteritis and diarrhoea.	Meningitis, simplex.	Tubercular meningitis.	Cerebral hæmorrhage.	Cerebral affections.	Group.	Diphtheria.	Hooping cough.
April, 1877	12	9	...	5	19	26	113	88	4	32	13	6	1	58	28	8	27	23	10	7	2
February, 1878...	18	1	3	1	5	60	146	70	6	24	10	2	5	42	25	...	36	17	11	9	...
April, " ...	48	2	2	2	7	51	122	77	4	33	8	9	3	44	33	2	37	20	17	7	3
October, " ...	48	2	6	2	33	46	67	78	1	26	10	6	5	111	37	2	14	20	13	10	...
November, " ...	71	2	9	2	23	69	129	66	2	30	19	6	5	68	22	...	42	10	23	2	...
January, 1879 ...	110	2	12	3	16	83	139	79	4	44	13	7	3	40	21	...	60	30	13	5	1
February, " ...	51	2	5	3	18	68	126	60	6	36	20	6	4	48	21	13	37	21	8	9	4
Toulon.																					
October, 1878 ...	...	...	...	...	1	7	8	8	...	7	5	1	...	21	11	...	3	2	6	...	...
November, " ... 142 deaths.	1	...	1?	1	1	25	19	12	2	5	3	3	2	11	2	...	7	1	3	...	...

Dr Gibert has also supplied some valuable information as to the Military Hospital at Marseilles during 1876, founded on the bulletins of Drs Frizon and Levié, so that we are able to learn something of the diseases which *brought patients into the hospital*. The total number of soldiers admitted was 2036, of these 1936 were discharged, and 81 died.

The tables subjoined give the numbers of cases of the chief diseases and the causes of death.

It should be noted that the garrison of Marseilles in 1876 had a strength of 3943 men, and its mortality was only 20 per 1000, whereas that of the civil population (318,868) was 38 per 1000.

Diseases admitted into the Marseilles Military Hospital, 1866.

Lung diseases.	Brain diseases.	Diseases of digestive tract	Erysipelas.	Varicella.	Acute articular rheumatism.	Intermittent fever.	Adenitis.	Mumps.	Typhoid fever.	Surgical and venereal diseases.	Jaundice.
321	7	274	24	24	80	76	9	54	202	1189	32

Causes of Death in the Military Hospital at Marseilles, 1876.

Typhoid fever.	Plithisis.	Pneumonia and pleurisy.	Diphtheria.	Meningitis.	Erysipelas.	Smallpox.	Acute alcoholism.	Nostalgia.	Diarrhoea or dysentery.	Sporadic cholera.	Peritonitis.	Bright's disease.	Phlegmonous ulceration.	Abscess of brain.	Malarial cachexia.	"Embaras gastrique."
45	3	11	1	3	1	3	1	1	2	1	1	1	1	1	2	1

Dr Gibert remarks on the frequency of rheumatic

fever in the early months of 1876, especially February and April. Heart complications were common, both endo- and peri-cardial.

The operation of paracentesis thoracis was performed several times for acute pleurisy.

The epidemic of mumps occurred in the spring, attacking several regiments. At the same time there were similar epidemics at Dijon, Antibes, and Albi, among the soldiers stationed there.

The cases of intermittent fever chiefly came from Corsica and Africa.

These tables will I think confirm my previous statements as to the current diseases of the coast, and it is interesting to compare the statistics of Marseilles with those of Toulon (in Table C), which is infinitely more sheltered than the former city. It will be seen that the deaths from phthisis are decidedly fewer in proportion to the population at Toulon than at Marseilles.

The prevalence of pneumonia at Marseilles is noteworthy, and is probably to be referred to the rapid variations of temperature and the draughts in the narrow streets, the thin clothing of the natives, and their habitual carelessness in exposing themselves to weather.

I have found the following passage bearing on this subject in Buhl's 'Letters' (p. 146):* "With regard to the temperature of the air it is absolutely certain that it is not the mean temperature of a place which regulates the frequency of catarrh or phthisis, but only *the larger, sudden, and often recurring, oscilla-*

* "Lungenentzündung, Tuberkulose und Schwindsucht," 'Zwölf Briefe an einen Freund,' von Dr. L. Buhl, Professor of Pathological Anatomy at Munich, 1872.

tions of temperature which the compensatory power of our body is unequal to resist." In this sense, therefore, "*the temperature of the air and its rapid variations must be regarded as exciting causes of inflammatory phthisis.*" Dr Tripe* also says: "The climate of a given locality depends materially on its aspect, *i.e.* on the extent to which it is exposed to or sheltered from certain winds."

Having now, as far as my information goes, discussed the prevailing diseases of the North Mediterranean coast in winter, I shall pass on to speak of the value of the climate as a remedial agent in various affections, and to point out in which of them benefit may fairly be expected from it or the reverse.

The largest contingent of invalids suffering from any one disease which reaches the Riviera is certainly the phthisical. By phthisis I mean a more or less progressive invasion of the air-cells of the lungs by proliferated endothelial cells (desquamative pneumonia, of Buhl), beginning usually at one apex and extending downwards. The "consolidation" thus produced tends through obliteration of nutritive blood-vessels, as well as by the pressure of the new cells on the surrounding tissues, to sloughing and ulceration, and so to the formation of cavities. The disease may remain localised in one lung, or it may also attack the apex of the other, and large portions of both lungs may rapidly become involved. In other very chronic cases a connective-tissue growth develops in the interalveolar lung tissue, and fibrous bands or septa traverse the diseased parts of the lung (fibroid phthisis of Dr Andrew Clark). By

* "On the Climate of some English Health Resorts," 'Quarterly Journ. of Met. Soc.,' p. 119.

the slow contraction of this connective-tissue alterations in the shape of the chest (generally unilateral) and in the position of the heart and other organs are brought about. There is a by no means sufficiently explained tendency in chronic phthisis to associate itself with amyloid disease of the liver, spleen, kidneys, and intestine, and with albuminuria. The relationship of phthisis to "tuberculosis" (by which modern observers generally mean an acute outbreak of disseminated miliary growths, the most characteristic elements in which are large multinuclear "giant" cells) is still under discussion.* The old view that all phthisis is tubercle must be considered as abandoned by the majority of writers, though I find Professor Charcot, of Paris,† maintaining (1) that yellow solidification of the lung in phthisis, whether acute or chronic, is not the result of the metamorphosis of the products of ordinary inflammation, but represents the *central caseous degeneration of a tubercular agglomeration* occupying the centre of an embryonic growth, which, except for its size, differs in no way anatomically from the classical tubercular growths described in modern writings. He also (2) states that "the products of common inflammation, almost always present amongst the complex lesions of caseous pneumonia, are only a secondary result of

* The most recent contribution to this subject is Ziegler's valuable essay, "Ueber Tuberculose und Schwindsucht," in Volkmann's 'Sammlung klinischer Vorträge,' No. 151. An important point, on which he lays great stress, as a factor in the progressive character of phthisis, is the infection of healthy portions of lung by the aspirated secretions of cavities and dilated bronchi, which form a nidus for septic bacteria.

† "Résumé of a Recent Course of Lectures on Pulmonary Tuberculosis and Caseous Pneumonia," 'Med. Times and Gazette,' vol. i, 1878, pp. 29, 30.

the morbid process, and not the prime agents in the disease." His final conclusion is that "nothing, to my mind, is better established than the existence of infiltrated or discrete tubercle as a fundamental element in the different forms of phthisis. On the other hand, nothing is more doubtful than the existence of caseous pneumonia, independent of tuberculosis, and constituting the prime agent in the phthisical process."

For myself, I hold that there is more truth in Buhl's doctrine, that the "grey granulation" or true tubercle, which even Charcot accepts as his type, is a product of lymphatic infection by caseous absorption, and that tuberculosis is a secondary accident, either local or generalised, in the course of catarrhal or desquamative pneumonia, as maintained by the late Felix von Niemeyer.

Our modern authorities seem to me to be abandoning little by little the old view that "phthisis" equals "tubercle." Dr Pollock, of the Brompton Hospital, whose most valuable work 'On the Prognosis of Consumption' I shall have to appeal to presently, gives the following as a frequent state of affairs in a *catarrhal pneumonia* blocking one apex.* "Epithelial sheddings and exudation matter fill the alveolus; next the walls become thickened and cells develop in the interior—cells which degenerate; and then the exudation matter is found in the inter-alveolar connective tissue, strangling the nutritive vessels of the lung, and you have a very different state of things, indeed, from that in croupous pneu-

* "Lectures on the Prognosis and Treatment of certain Varieties of Consumption," delivered at Brompton. 'Med. Times and Gazette,' vol. i, 1878, p. 56.

monia, for when the degeneration period comes (and none of these products live long) we have the blocked alveoli, the walls and the inter-alveolar tissue softened, ulcerated, destroyed, and the case becomes *phthisis*.” Not a word about tubercle occurs in this passage, but any one who has studied microscopic sections of a phthisical lung will see the force of the expression “blocked alveoli.”

Dr C. Theodore Williams, in his Lettsomian Lectures ‘On the Influence of Climate in the Treatment of Pulmonary Consumption,’* after excluding from consideration acute miliary tuberculosis, and acute phthisis with consolidation and excavation (“acute desquamative pneumonia” of Buhl), divides the principal forms of phthisis as follows:—Into (1) phthisis arising from pleurisy, pleuro-pneumonia, or pneumonia; (2) catarrhal phthisis; (3) hæmorrhagic phthisis; (4) laryngeal phthisis; and (5) chronic tubercular phthisis. As far as I can see, however, the anatomical lesion, on which the underlying phthisis in all the varieties depends, is the same, and Dr Williams’ description of catarrhal phthisis† will practically apply to all, as he himself admits that it does to “chronic tubercular phthisis.” His description is as follows (l. c., p. 404):—“A catarrh creeps down the bronchial mucous membrane and eventually reaches some of the alveoli. Here rapid proliferation of epithelium (lymphatic endothelium?) occurs, which is the more irritated and prone to multiply, owing to the inhalation of some of the bronchial secretion. The alveoli become choked

* ‘Brit. Med. Journ.,’ January 22nd, 1876, p. 96.

† “Clinical Lectures on the Varieties of Phthisis, delivered at Brompton,” ‘Brit. Med. Journ.,’ March 23rd, 1878, p. 403.

and stuffed with epithelium, and the vessels may be emptied through pressure; ulceration may follow, and the whole mass may liquefy, caseate, and be expectorated. More commonly, however, caseation of the epithelium takes place, followed by absorption of the necrobiotic material by the lymphatics. Thus the alveolar wall, with the perivascular lymphatics, becomes involved, and adenoid hyperplasia (*i.e.* the [true] tubercle) is the result." A few sentences further on he says:—"Most cases of catarrhal phthisis gradually become one of chronic tubercular phthisis, and consequently the post-mortem appearances do not differ materially from those of the latter (catarrhal) variety."

A most concise and accurate account of the histological changes which occur in phthisis will be found in Dr J. H. Green's capital little book.* He lays very little stress on "tubercle" as a factor in phthisis, and shows that "the most important changes met with in phthisical lungs are of four kinds (p. 60):—
"1st. The presence of leucocytes and exudation matter within the alveoli. 2nd. An accumulation within the alveoli of large cellular elements, which are the offspring of the alveolar epithelium. 3rd. A cellular infiltration and thickening of the alveolar walls; and 4th. An increase in the interlobular connective tissue. These four kinds of change, which may be associated in very different degrees, constitute the most important factors in the production of the phthisical consolidations."

I think after these quotations it will be admitted that the description of phthisis which I gave a few pages back fairly represents the modern view of its

* 'The Pathology of Pulmonary Consumption.' H. Reushaw, 1878.

pathological anatomy. The great thing, it seems to me, is to get rid of the expression "tuberculosis" as applied to chronic phthisis, that is to say, if we believe that acute miliary tuberculosis is a totally different disease from phthisis proper. The word "tubercle," I feel convinced, is held by numbers of practitioners as equivalent to "speedy death," and this idea prevents as much being done for the right treatment of many cases of phthisis as would be if there was not so hopeless a prognosis attached to the disease. If it were a question of argument I could cite instances which I have myself observed in support of the view stated in the previous sentence.

The reason I have devoted so much space to the question whether phthisis depends ordinarily on what we may call "desquamative," "catarrhal," or "caseous" pneumonia, or on a specific adenoid growth called "tubercle," is, that if we believe in the former, and also in its relation to causes which depress the organism as a whole, some of which will be presently briefly discussed, we shall believe that a treatment which tends to brace and invigorate the constitution, and a removal from certain injurious climatic conditions to others of an opposite kind, may lead to the arrest of the diseased process. As we at present know no specific remedy for true "tuberculosis," I cannot see that if we believe phthisis is synonymous with tubercle we can expect much from treatment.

I should like now to say a few words about the causes of phthisis. These are generally stated to be "hereditary predisposition," depressing and unhealthy employments or professions, a damp climate or soil, and especially the latter, confinement

in close ill-ventilated rooms, or, to put it briefly, all conditions which impair the bodily vigour. Injuries to the chest (Lebert, 'Revue Mensuelle,' i, 776) and hæmoptysis, due to over-exertion or muscular strain, have lately been adduced as exciting causes of phthisis, and von Sokolowski has described ('Berliner Klinische Wochenschrift,' No. 39, 1878; 'Beitrag zur Aetiologie der Chronischen Lungenschwindsucht') several most striking cases in support of Niemeyers's theory of "*phthisis ab hæmoptoë*." The influence of alcoholism, dissipation, and possibly of syphilis, in causing phthisis must not be forgotten.

Altogether, the most important factor in originating the development of phthisis appears to be *hereditary predisposition*, though the authorities are not at one as to the exact proportion which the hereditary cases bear to all others. Dr Pollock ('The Elements of Prognosis in Consumption,' p. 340) gives it as two out of three. The Brompton Hospital Report (quoted by Dr C. J. B. Williams, in 'Pulmonary Consumption,' p. 114) gave 24·4 per cent. as the proportion in 1010 cases where attention was directed only to the parents, while Dr Williams himself only found 12 per cent. of 1000 *private* cases dependent on hereditary parental transmission. Where grandparents, uncles, and aunts were included, Dr Fuller found 59 per cent. of 385 cases hereditary, and Dr Cotton, who included parents, brothers, and sisters, found 36·7 per cent of 1000 cases transmitted.

The importance of taking hereditary influence into account in any estimate of the value of climate on phthisis is proved by Dr Williams' statistics (l. c., p. 124, *et seq.*). They show that while hereditary predisposition exercises no particular influence over

the duration of phthisis *once acquired* in either sex, it has a "considerable influence in shortening the duration of life," by "hurrying the onset of the disease." In other words, the shorter duration of life in hereditary phthisis is due, not to the latter "being more virulent and rapid in its progress, for that idea has been disproved, but to the fact that those who come of a consumptive stock are liable to be attacked earlier than others whose families are free from taint" (l. c., p. 127).

The influence of sex on phthisis must not be disregarded in observing the effect of climate. "Sex exercises an important influence on duration. Among females the disease lasts a shorter time than among males, as the following abstract from our tables demonstrates :

Average duration of disease in 119 males (dead),		8 years, 4.72 months.
"	"	79 females " 6 " 8.67 "

This shows a difference of one and a half year in favour of the former. When we call to mind that the age of attack with females was earlier than with males by an average of three and a half years, we see clearly that women succumbed much more quickly to the fatal disease. The females died, on an average, at $34\frac{1}{2}$; the males, on an average, at 40. Showing a difference of $5\frac{1}{2}$ years between the expectation of life in the two sexes" (Williams, l. c., p. 810).

This view is, however, not held by every one, and Buhl (l. c., p. 162) asserts that "the disease becomes more readily chronic in the woman than in the man, who has to exert himself in the 'struggle for existence,' in the ratio of 3.2."

My own rather superficial observation of the female cases met with on the Riviera would certainly confirm Dr Williams' statement. Whether they are sent out too late, or whether they are too much coddled by anxious friends, I have acquired an unfavorable impression of such cases. It may, however, be that only the worst, as a rule, come out, owing to the necessity for a travelling companion, and for other things, which add to the expense and difficulty of arranging matters. This may partly explain why we see so many more phthisical men than women in the South of France.

I think, however, that my friend Dr Siordet's remark, *à propos* of this sentence, is a just one, namely, that, judging from his experience, "There are many more phthisical *girls* from the age of sixteen to twenty years than *boys*." He has found that in some of his female patients "the cause of their illness (the exciting cause at least) has been supposed to be school life, and the blame has been laid on bad food, hot school rooms with deficient ventilation, &c." No doubt the life of boys at school is, on the whole, a far healthier one than that of girls, whose outdoor occupation chiefly consists in walking two and two on the pavement like the animals in Noah's Ark. Boys have their cricket, football, fives, and other outdoor games. Girls are the victims of propriety, which too often prevents them enjoying healthy exercise, and condemns them to sedentary pursuits, by which their constitutions are damaged and debilitated.

Passing from hereditary predisposition to the other causes of phthisis, a large number of cases (14·2 per cent. of Dr Williams' 1000 cases) can be

traced entirely to previous inflammatory attacks of the lungs, either pleuro-pneumonia or bronchitis. A few cases follow typhoid fever, measles, whooping-cough, and scarlet fever. Still more are preceded by rheumatism (Pollock), so that "it is impossible to avoid the conclusion that the two diatheses are closely allied" (l. c., 271).

The question, however, in the class of cases supposed to depend on pleuro-pneumonia or bronchitis is whether the diseases said to have been true pneumonia and true bronchitis were not all the time of the nature of acute desquamative pneumonia. We have the great authority of Buhl, as one who has studied the question in the light of pathological anatomy, that catarrhal or croupous pneumonia or chronic bronchitis are never causes of phthisis, and he adds (l. c., p. 145), "I agree with Laennec, who asserted that phthisis pulmonum never develops from a neglected or protracted catarrh."

In the cases sent to the Riviera we need scarcely inquire for those exciting and predisposing causes which are so common among the poor—unhealthy houses, insufficient food, exposure to a dust-laden atmosphere, &c. Overwork of the brain at the period of growth, prize competitions at the universities and schools, and professional struggles, seem to me to account for many of the cases in young men which are not directly referred to "catching cold."

In women the causes (some of which were referred to above, p. 104) are often more obscure, and I have been startled in several cases met with in the Riviera, where the patients were accompanied by their parents, by noticing the excellent health of *both* the latter. Still, such cases were all remarkable by the

rapidity with which the disease progressed to a fatal end.

Waldenburg* qualifies the statement that "we often enough see several children of one family become phthisical, although neither their parents nor grandparents have ever suffered from phthisis," by saying that the latter "have shown other morbid tendencies instead." But this rather weakens the doctrine of hereditary phthisis than explains the origin of the disease in the children of non-phthisical progenitors.

Among the factors on which the development of phthisis certainly depends *dampness of soil* is a very important one. Dr Williams has expressed himself very strongly on this point (l. c., p. 133), not only from the data furnished by Dr Buchanan, in England, and Dr Bowditch, in America, but from his own personal experience, and he relates a remarkable example of the connection between phthisis and dampness of soil, where out of the twelve children of two healthy parents, living in Essex on a clay soil, four died of consumption, and three were the subjects of scrofula. I remember a somewhat similar case in Devonshire, where two out of four children died of tubercular meningitis. Their house was in a low-lying situation near water. The parents were, and are, perfectly healthy.

Dampness of the atmosphere of a particular place—a high relative humidity, especially when associated with a damp soil—is a potent predisposing cause of phthisis. On this point Buhl ('Zwölfter Brief,' p. 147) remarks:—"The majority of districts in which phthisis is very rife, are distinguished by a high

* 'Die Tuberculose,' &c., p. 524.

degree of atmospheric humidity, while, on the other hand, those places where it is rare are remarkably dry." Later on (p. 148) he says:—"As a fact, a large and constant amount of dampness of the air and soil gives rise to the phthisical constitution, and it is only the absence of exciting causes, *i. e.* rapid oscillations of temperature, which compensates for such an unfavorable relation."

Dr Pollock has also referred to the subject of dampness of soil in his recent lectures at Brompton ('Med. Times,' vol. i, 1878, p. 673), and he sums it up thus:—"Now, the result of Dr Buchanan's observations on the localisation of phthisis is just this—that the bed of great rivers, alluvial soil, and low, damp, and ill-drained localities, are those where the disease is most prevalent and most fatal. I gave much attention to this subject before Dr Buchanan's observations were made, and the result of an extensive research into the residences of out-patients attending at Brompton Hospital was that the valley of the Thames furnished the greatest number."

The last point in reference to the etiology of phthisis which I shall refer to in this outline is the direct relation of the prevalence of the disease to population; no doubt this factor has less influence on the class of patients who frequent the Riviera than on the hospital patients of London or any of our large cities and towns. The poor patient has no escape from the injurious effects of town life; the rich one can at least get a few weeks holiday in the year. The rich, using the term in the sense of "well-to-do," live in better situations, inhabit more airy houses, and naturally have many more comforts than the poor, but both suffer more or less from the nature

of their surroundings ; and the phthisical inhabitants of large towns—London, Edinburgh, Newcastle, Glasgow, &c.—are well represented on the Riviera.

Before pointing out the bearing of the preceding pages on the climatic treatment of phthisis, there are two observations worth remembering. The first is that “the duration of the disease is increased by age” in both sexes, especially in the years beyond thirty (Pollock, l. c., p. 79) ; the second, that cases of phthisis get well, or remain stationary, under every possible variety of healthy and unhealthy conditions. “Some of our most prolonged cases have been among the out-patients of a London hospital ; among mechanics, following unhealthy trades, and with but scanty supply of wholesome food, eaten in ill-ventilated and dusty chambers, without possibility of obtaining change of air, or even enough of fresh air !” (Pollock, l. c., p. 69.)

“In all climates, in all classes of society, under the most varied conditions of life, we meet with a series of cases, and that not a very short one, in which tuberculosis and chronic disseminated pneumonia either do not end in consumption at all, or close at a late period. Either with or without a primary hæmoptysis, the ordinary signs of catarrh appear at the apices, and the general condition of the patient suffers accordingly ; but the disease becomes arrested, and gradually the patient quite recovers his health. No matter how we interpret the caseous deposits (*Herde*) at the apices of the lungs, this much is certain, that no small part of those we find at post-mortem examinations of persons dying of all kinds of different diseases are the product of former tubercular broncho-pneumonic aggregations.

“In such cases the cure was often quite permanent, and yet these observations are chiefly derived from hospital patients; that is to say, from the poorer classes of the community.”* It is unnecessary to insist more on this point, which, though apparently often forgotten, must be familiar to most medical men who have attended many autopsies, or kept their eyes open in general practice.

And now what bearing has all that has gone before in this chapter on the climatic treatment of phthisis? I think it has a twofold application. First, we see from it what elements of climate are likely to benefit phthisis; and, secondly, we are able to some extent to be on our guard not to ascribe more value to change of climate than it really deserves.

These points require a few lines to be devoted to each; but as to the first, I think I need scarcely say more than that it is clear that, if dampness of soil, dampness of atmosphere, large oscillations of temperature, life in large towns even without overcrowding, and overwork and depressing occupations generally, are the main exciting causes of phthisis, if we can put our patients where the soil is infinitely drier than in England, where sunny days are the rule and not the exception, and where fog is to all intents and purposes unknown, while the air is pure, fresh, and bracing, we shall gain a good deal. If at the same time we surround him with lovely scenery, change the current of his thoughts, occupy him much out of doors, and at the same time shelter him from the colder winds, we shall gain still more. I think those of my readers who have the patience to get a general

* Lebert, “Die Curorte der Riviera di ponente,” &c., ‘Berl. Klin. Wochenschrift,’ 1878, p. 517.

idea of the climate of the Riviera from this little work will admit that that district can offer most, if not all, of the climatic advantages just enumerated.

The second point, the necessity of not over-estimating the effects of climate, is an important one. For instance, a female and a male of the same age are sent at the same time to the south of France; *cæteris paribus* the latter does much better than the former. Is the climate to be blamed in one case and praised in the other? We must remember (*vide* p. 103) how sex influences the duration of phthisis. Again, two patients of either sex, one aged twenty-five, the other thirty-five, try the effect of a southern winter. We can be almost certain that the latter will get on best, for the duration of the disease (which implies diminished intensity) is increased by age (*vide* p. 108).

Lastly, we must never forget what may, after all, be the natural tendency of the disease, where hereditary predisposition is not strong, namely, how phthisis gets well under all conditions of life and climate (*vide* p. 108).

Before producing direct evidence of the effect of the climate of the Riviera on phthisis once developed, it may not be out of place to remark that, while we have no right at present to assume that the phthisis of hereditary predisposition is more capable of modification than that which arises in the persons of a perfectly healthy stock, there is little doubt that the hereditary predisposition to phthisis may be successfully combated, temporarily, at any rate, by a suitable climate. My own experience is that delicate children, and young people, at and near the age of puberty, do wonderfully well on the

Riviera in winter. For the reasons already given, they are able to spend many hours every day out of doors, and the catarrhs which they suffer from in England in winter and spring are almost entirely avoided. A few winters in the south just at this critical period may thus be the means of averting the onset of phthisis altogether; and even if the latter can be averted for a few years that is a direct gain, since the duration of the disease increases with age.

My readers may now be anxious to know whether the results of the treatment of phthisis proper by the climate of the Riviera are at all better than those of England.* The following table, which probably embraces the largest number of cases which has as yet been brought together, will assist them in forming a judgment on this point.

* On the subject of statistics like those now to be cited, Dr C. T. Williams has these excellent remarks:—"I maintain that the great gap in our knowledge at present lies in the non-publication of results of climate on disease. Hundreds, aye, thousands, of our patients leave our shores yearly in the pursuit of health, and how few records of this great annual climatic experiment are communicated to the profession! Mentone and Madeira have, among others, given some results collected by local practitioners, and the experiment of the Brompton Hospital in sending patients to Madeira supplied some impartial information on the effects of that climate on phthisical patients of the English lower classes. The object of these lectures will be fully attained if thereby others with ample opportunities be induced to come forward and give us the fruit of their long experience on these points."—'Brit. Med. Journ.,' Jan. 8, 1876, p. 39.

Table of cases of Phthisis treated on the Riviera by different observers, chiefly at Mentone, Nice, and Cannes.

Observer's name, locality, and date.	Number of cases.	Cured, at least temporarily.	Much improved.	Stationary.	Worse.	Dead.	Where recorded.
DÜHRSEN, Mentone. 1868-72	155	31*	...	65†	...	59	'Deutsche. Med. Wochenschrift,' No. 7, 1876.
Same. 1872-75.....	276	78	128	...	43	27	Ditto.
STIEGE, Mentone. 1863-75...	772	333	260	...	113	66	Ditto.
SPARKS, San Remo, Mentone, Hyères. Up to 1878.....	35‡	7	17	...	6	5	Unpublished.
MARCEY, Nice and Cannes. Up to 1875	19	11	...	...	6	2	'On the Mediterranean Coast, &c., in its Medical Aspect,' 1876.
C. T. WILLIAMS, all parts of Riviera	82	...	48	17	17	...	'Lettsomian Lectures,' 1876
THAON, Nice. 1873-77	154	36	47	19	17	35	'Nice Médical,' 1877-78.
SIORDET, Mentone. To May, 1878	Males, 100 Females, 84	...	23	22	29	26	Previously unpublished.
		...	16	21	33	14	
FARINA, Mentone. Cases spending one winter only	Males, 122 Females, 96	10	75	14	...	23	'Le Climat de Menton,' 1879.
FARINA. Cases spending two or more winters.....	Males, 19 Females, 15	6	9	15	...	16	Ditto.
		5	3	...	...	5§ 7||	

* The whole of these 31 cases had been able to live in Germany for three consecutive winters, and were well at time of report.

† The 65 cases here placed under "stationary" had been lost sight of for some time; probably, therefore, some were well, others dead, and the rest cases of chronic "stationary" phthisis.

‡ These cases were not all treated by me personally, but I had opportunities of knowing their condition accurately.

§ Of these 5 cases 2 lived two winters, 2 four, and 1 eight winters at Mentone.

|| It is noteworthy that all the 7 cases died within the first two winters.

Subjoined I give the totals for the above table, with the per-centage numbers calculated for each, and on the whole I think the results obtained must be considered satisfactory.

Cases treated on the Riviera.

			Numbers per cent.
Cured or improved	. 1208	...	62·6
Stationary or worse	. 437	...	22·6
Dead . . .	. 284	...	14·8
<hr/>			
Number of patients	. 1929		

It must be remembered in dealing with the larger table that it is necessarily of rather a heterogeneous character. It includes not only the results of different observers, but the results of the effects of climate and treatment on patients of different nationalities and temperaments, and also the results of different kinds of treatment apart from the climatic. I do not wish to lay too much stress on this last point, but it should not be lost sight of. For example, I am convinced that one reason why French patients often do not get on well is that they are blistered, cauterised, and subjected to other "revulsive" treatment to such an extent that their remaining strength is thereby lowered, while they are lucky if they escape "depressant" doses of tartar emetic, one of the most favourite drugs with French doctors. German patients tend to counteract the good effects of the very sensible way in which they usually spend the hours of daylight, by their objection to all ventilation, and their stuffy behaviour at night. I cannot refrain from inserting here the translation of a passage written lately by a German doctor* about

* Dr Leopold Friedmann, "Erinnerungen an Klimatische Wintercurorte," 'Berl. Klin. Wochenschrift,' No. 2, 1879, p. 25.

his countrymen on the Riviera in proof of this statement, for it carries with it the moral that where the German element exists fresh air indoors will be a rarity. He is speaking specially of an hotel at San Remo, frequented by Germans, but the description holds good anywhere. "We sat," he says, "sixty or eighty of us for an hour at the *table d'hôte*, and several hours longer about thirty of us in the little drawing room, and gradually the heat became tropical and the air unutterably foul. But woe to him who tried to open a window! I made several attempts, but was greeted with such black looks and accused of such unpardonable egotism, that I would nevertheless have attempted it again if five men had not simultaneously flung themselves against the window, to prevent the least breath of air entering. On days that were not *very* warm the patients crept into their narrow chambers; in short, they systematically rendered themselves unfit for ever living in another climate, such as that of their northern home."

I can testify myself that this description is not overdrawn; and another German doctor,* speaking of the atmosphere in the *salons* of German *pensions*, adds, that "in any case one soon suffers from the emanations of the crowded company, of whom the north Germans are generally the most solicitous to hermetically close all openings, by which the faintest draught can enter. These very men, who would repel the imputation that they had washed their hands in the water some one else had used, as something unheard of, inhale with the utmost indifference the dirty breath from the lungs of their nearest neigh-

* Starcke, "Kritische Erinnerungen an einen Winteraufenthalt im Süden," Berl. Klin. Wochenschrift, No. 44, 1878.

bour.” In quoting these passages I do not mean to imply that Germans are the only offenders against the hygiene of rooms. My own countrymen and women are not all faultless in this respect, but they are certainly far more sensible than our German cousins. One thing I firmly believe—that the latter sin against the will of their medical advisers, for it is impossible that men so enlightened as the present race of German physicians can sanction such a state of things as that just described; in fact, that they do not is proved by the quotations I have translated. To return to the table at page 112, another element of importance, on which I shall have something to say in Chapter IV, and which must have largely affected the results tabulated, is the way in which the different chronic patients passed the summer in the intervals between their visits to the Mediterranean. To it I need not further allude here. A still more important point, which it is impossible to take account of in a statistical table involving high figures, is the stage of the disease at which the patients were sent south. I shall refer to this point again a few pages on; but in spite of repetition it may safely be said, judging from our daily experience on the Riviera, that the majority of the cases were sent from home too late, and that the results would have been infinitely better had it not been for that mischievous delay, which is as fatal to phthisical patients as the refusal to operate early is to large numbers of women afflicted with cancer.

Other observations will suggest themselves to the thoughtful reader. Taken as a whole, I think the statistics I have adduced are by no means unfavorable. They certainly do not lend much support

to the poetical exaggerations of a recent writer, who implores his (or ? *her*) phthisical readers "to give up the seductive but deceptive mirage of a southern clime, and instead of seeking to lull the subtle enemy who has attacked them to a shortlived slumber in the balmy regions of the south, to challenge him to open, hand-in-hand combat (*sic*) in an alpine valley.*

The question What forms of phthisis do best on the Riviera? is less easy to answer than at first sight appears. More elaborate statistics than are yet available are necessary to decide it.

Dr C. T. Williams thinks, from a review of his cases, that, "taking collectively all forms and degrees of phthisis, the dry climates are the most likely to arrest the disease; and, also, that a dry and moderately warm climate, like that of Southern Europe, is most successful in the treatment of consumption of *inflammatory* origin." "As to the desirability of moist climates for consumptive patients, the evidence is decidedly against their use in the treatment of ordinary chronic phthisis,"—"phthisis of *catarrhal* origin has, however, been shown to profit most by a warm and equable climate, even though accompanied by a certain amount of moisture, as the evidence of Madeira witnesses (l. c., p. 222, 'Lettsomian Lectures')." On a previous page he says:—"I found that phthisical cases of inflammatory origin did better in the South of Europe than at Pau or Madeira. The *scrofulous* patients seem to have done fairly well in all climates, and not, as might have been expected, to have profited more by a marine than by an inland air." The only remark I

* 'Davos-Platz,' by one who knows it well, 1878.

have to make on these passages is that I doubt whether it is possible to draw a hard-and-fast line between catarrhal and other forms of phthisis (*vide* p. 99 *antea*), and that in all probability the moist climate of Nervi and Rapallo, on the eastern Riviera, would probably suit those diagnosed as "catarrhal," as well as that of Madeira.

Most of the writers who have laid down rules for sending patients to the South have taken the stage of disease and the general character of the symptoms as their guide rather than the etiology. There is, however, a general agreement among them that acute cases with high evening temperature and the physical signs of advancing disease should not be allowed to leave home. In cases complicated with habitual diarrhœa, laryngeal ulceration, and severe dyspepsia, the Riviera is also contraindicated. Whether Lebert is right in extending the veto to chronic cases complicated with amyloid disease and albuminuria, is, to my mind, by no means certain. I am sure also that some cases with moderate fever, where the patient is not very young, improve wonderfully if they are strong enough to bear the journey. Soon after their arrival, if proper care be taken, the fever gradually diminishes, the appetite improves, and they begin to gain flesh and strength.

Dr Pollock,* however, lays down that "persons ought not to travel *at all* with feverish symptoms; with secondary complications; with a large amount of local disease in any stage; with both lungs diseased; with poor digestion and greatly lowered nutrition; or in such a state of weakness or emacia-

* 'Clinical Lectures on Certain Varieties of Phthisis, &c.,' Lecture III.

tion as to require home comforts, peculiar beds or chairs, or varieties of invalid cookery." With the last part of this paragraph I quite agree, and no doubt extreme prudence would compel one to agree to the whole of it, but I am sure that every medical man on the coast must see patients improve who come into the first five categories, and of these some *recover*.

Dr Siordet's remark, after reading the foregoing in manuscript, is as follows:—"If cases of advanced phthisis get over the fatigue of the long journey and the first settling down on the coast, it is simply marvellous to see how long they may become protracted. Increase of the disease certainly goes on in the lungs, but the general symptoms are less marked, there is some comfort gained, and almost entire freedom from pain is secured, so that the parents may become sanguine of improvement taking place. Surely, even this lull in the storm is worth the expense and trouble of coming out. Emaciation is sometimes in such cases carried to a most incredible extent."

Of the cases which may be sent with advantage to the Riviera, probably the most favorable are those of patients between twenty-five and thirty-five, or older, with a localised "deposit" in one apex, a fair amount of flesh and strength, and little or no fever.

The smaller the amount of lung tissue involved the better the hope, provided the patient takes reasonable care of himself, which unfortunately is not always the case. There would, I am sure, be even better results obtained on the Riviera if patients were sent earlier than they generally are in English practice. Numbers of cases are despatched as a last

resource, in the hope, we must suppose, that a miracle will be performed for their benefit, when, if the same expense had been incurred a year or two earlier, arrest of the disease would probably have taken place. From my observations at Mentone I should say that the Germans best understand the importance of sending cases very early indeed to the South, and I should be surprised if their results were not the best hitherto attained. The English probably come next, and the French last. The Frenchman clings to his home until all hope has nearly expired before he can be induced to leave it, and the largest number of bad cases always seems to me to be furnished by the French. They are not cosmopolitan like the English and Russians, neither do they become acclimatised as these latter do. Hence there may be a second reason why as I have already remarked the French patients appear to do worse on the Riviera than others, namely, that the climate is too exciting and stimulant for them. Dr. Thaon in his able paper on the treatment of phthisis by the climate of Nice ('Nice Médical,' Oct. 1st, 1877) distinctly states that while the English and Russians at Nice select the less sheltered situations, and those near the sea, the French "get on best in the plain or on the hills of Carabacel, Cimiez and Montboron," (*vide* Chapter vii, Nice), and he expresses his belief that Dr. C. T. Williams's statistics would require some modifications before they would "hold good of the more excitable Frenchman, instead of being founded on data collected among English patients who are always rather more lymphatic."

As to the results of treatment among Russian patients I have no reliable data. I understand,

however, from a gentleman who has many opportunities of seeing their mode of life on the Riviera, that they undo most of the benefits of the climate by living in hot, ill-ventilated rooms, and by frequenting theatres, and also the Casino and gambling rooms at Monte Carlo, even when in an advanced state of disease.

I am sorry to say that some of the English patients whom one sees on the Riviera are not unlike the Russians in the foolish and unreasoning way in which they behave. They seem to think that it is enough to be on the coast for them to get well, without lifting a finger on their own part to aid the beneficial influence of the climate. For *them* the climate must work miracles unaided.* The influence of such an idea cannot fail to be disastrous. Hæmoptysis is the result of frequenting the hot *salons* and joining in dances, and sometimes in boisterous games, at night. Fresh catarrhs follow rash exposure to bad weather, and in spite of all treatment the disease progresses. Over-exertion and fatigue induced by taking part in picnics and long excursions into which invalids are too often led by the ill-judged advice of healthy friends, annually turn the balance the wrong way in cases which might otherwise recover. Patients

* The following passage is from 'Douglas's Searches for Summer,' p. 7 :

"And while the doctor is supposed to be able to absolve men from the consequences of their sins, these consequences are, I find among invalids in general abroad, always set down to the fault of the climate. It is quite astounding to hear the wonderful, inexhaustible variety of detractive adjectives and epithets applied to this scapegoat, such as 'too bracing,' 'too astringent,' 'too relaxing,' 'too elastic,' 'not elastic enough,' 'too heavy,' 'a tightness in the air,' 'a hardness in the air,' 'too subject to electric influences,' &c." See also p. 9 of the same work.

with phthisis, and I speak alas ! from my own only too vivid experience, whether on the Riviera, in England, or elsewhere, if they wish to give themselves a chance of permanent recovery, or even of prolonged arrest, can never afford to forget for a moment that they are the subjects of a most serious disease, and to arrange their life accordingly. The tendency of the disease is to make them anxious to overdo themselves, either bodily or mentally, or both, and they require to be ever on their guard against this insidious impulse to activity. *Ne quid nimis* is a good motto for this class of sufferers, who, I would further remark, would often get on much better if they did not regard their doctor—"Old So-and-so" they call him—as their sworn enemy, instead of their best friend, and his injunctions as "all bosh."

Returning to our enumeration of the kind of cases that may be benefited by the Riviera, I may say that patients with a cavity *plus* other limited disease of one lung often do well, and that the existence of even a large cavity, provided the disease is not rapidly progressing, is no contraindication to the "cure." This fact was strongly impressed on my mind by a case I examined a few years back, and which got on remarkably well, first at Mentone, and afterwards at Cannes. On it all observers are pretty well agreed.

All cases of phthisis with a chronic tendency, especially where the constitution is not much undermined, are suited for the Riviera, also those which are clearly stationary, the patients chiefly requiring shelter from damp, and the other meteorological factors which set up fresh catarrhal inflammation in Northern Europe. Such patients are able to avail

themselves to the full of the advantages of the dry and bracing air of the South.

Persons who perpetually suffer from catarrh in England during the winter, which at last threatens to localise itself in one of their apices, may have their lives saved by passing a few winters in the South. A tendency to hæmoptysis is no contra-indication to the choice of the Riviera, and I have known several very severe cases of a recurrent character do extremely well. The late Dr Dührssen, who for three years practised in Madeira, and then came to Mentone, states* that he found no difference in the frequency of hæmoptysis as a complication of phthisis between these two places; Madeira a warm, moist, even climate, and Mentone a warm, dry, less equable one. Lebert (l. c., p. 518) says, "The occurrence of severe hæmorrhage from the lungs from time to time in chronic cases, even where one upper lobe is considerably involved, by no means prevents our entertaining the idea of sending them to the Riviera, but only renders a number of precautionary hygienic measures necessary."†

Dr Marcet‡ expresses his opinion that "patients with a tendency to hæmorrhage should be careful not to take up their residence near the sea or at the sea level," but I have known such cases get on very well though living within a few hundred yards of the sea. I remember a very striking instance of this at San Remo, in 1868. Dr Marcet, however, for whose

* 'Deutsche Med. Wochenschrift,' 1876, p. 79.

† With reference to these precautionary measures it may not be out of place to notice that Dr. Reginald Thomson in his recent work, 'Pulmonary Hæmorrhage,' makes *exertion* the most important factor in the induction of hæmoptysis.

‡ 'On the Mediterranean Coast in its Medical Aspect, &c.,' p. 36.

opinion I have the highest respect, believes that these patients do best "on the hills which skirt the Mediterranean coast, at an altitude of from fifty to four or five hundred feet above the sea" (l. c., p. 11), and he has had considerable experience at Cannes and above Nice. Happily these conditions of elevation are now to be met with at all the older health resorts, though whether the general migration of *all* cases inland and to elevated ground (as is now the vogue) is as likely to prove beneficial as is sometimes supposed, I very much doubt. The cases sent to the Riviera ten or fifteen years ago *all*, with few exceptions, lived near the sea, and if a large number of them had not been benefited, the fame of the coast would certainly not have been what it is to-day.

If acute cases with high fever do badly by the sea, they do badly also away from it. I met with a medical man in 1877, at Hyères, which is three miles from the sea and many feet above it, and he told me his evening temperatures were 103—104° Fahr.; and I have myself attended a similar case at Mentone in a younger patient where the temperature every afternoon was 103—104°, or higher in spite of all treatment, and of residence a hundred feet above, and more than half a mile from the sea. Of course cases like these are nearly hopeless anywhere; and to send patients in this state abroad is simply folly, for they go to the bad wherever they are. The best chance for cases with acute symptoms and signs of softening is to keep them at home until the disease shows signs of localising itself and becoming chronic, and then when the strength is sufficiently regained to try the bracing effect of the Riviera

climate. With this view not only the experience of the medical men on the Mediterranean coast, but also that of our English authorities, for example Dr Pollock, coincides. A large number of the deaths which occur in phthisical patients on the Riviera occur in the early part of each season; in cases so far advanced when they arrived as to have but the faintest hope of recovery. Thus, to take a concrete example, Dr Farina ('Le Climat de Menton,' p. 81), whose book appeared when the previous part of the present chapter up to page 122 was already written, found that, of thirty-nine deaths which occurred in 172 patients who spent but one winter, or a part of one winter, at Mentone it took place within a fortnight after their arrival, nineteen others within two months, and only thirteen from this time to the end of the season.

As to the number of winters which patients who begin to benefit from the climate should spend on the Riviera it is impossible to speak with certainty, but putting aside expense and looking at the matter merely from an abstract point of view, I doubt whether at least three winters should not be reckoned on.

It would be quite exceptional, I should think, for a phthisical patient to improve so much in one season as to be able *safely* to winter in the north, and one sees such remarkable benefit obtained by returning winter after winter, for three or four winters, that there can be no doubt that a person who wishes to get all the good possible from the Riviera should not desert it after a single successful trial.* Where

* Dr. Siordet writes me as follows with reference to the above passage:

"I am glad to see that you insist on the wisdom of sending here for

expense is no object, and professional engagements do not interfere, chronic stationary cases, which are generally reckoned among the "cured" do well to reside permanently every winter in whichever of the health resorts they find suits them best.

With many people, unfortunately for them, the case is different. Some can only manage to spend one winter, others two, or, at the utmost, three winters, and even then great sacrifices have often to be made, and the double expense of maintaining two establishments, one at home and the other abroad, is a burden which may add pecuniary anxiety to the anxiety of illness.

The hardest cases of all are those of young professional men obliged by their illness to throw up their work in England, and who recover sufficiently after a winter or two in the South to think of doing something again. As long as they remain on the Riviera they are able to enjoy life, and are strong enough to undertake light work, but how many can find any remunerative occupation there? Even for clergymen and doctors the field is limited, and for barristers, lawyers, merchants, clerks, and others, there is literally nothing to do. A little may be made by tutoring, and literary men can, if they are able to dispense with good libraries, continue to write. For the majority, however, of men with limited means there is no scope on the Riviera. Hence the climate of the latter can only for them be regarded several winters in succession those patients who have derived benefit during a first season. However great the improvement obtained in four or five months, a longer period should be given to maintain a more or less permanent *arrest* of chest disease. For us local advisers it is often invidious to press the point with our patients, and they are apt to think we are biassed in our advice by mean personal motives."

as helping to give them, as it were, the means of making a new start, but the start itself must be made elsewhere. A discussion of the climates in which Englishmen with chronic phthisis may settle, with a view not only to maintain the advantage they have gained, *quod* health, but to earn a livelihood, would exceed the limits I have proposed to myself in writing this little work. I am even doubtful whether the materials for the adequate discussion of the subject are as yet available. It seems almost too obvious a remark that few English invalids or convalescents will probably care to settle down with a view to business except in British or American possessions. Happily, the Cape of Good Hope, New Zealand, and San Francisco, which appear to be the favourite regions of the earth at present for consumptive settlements, are in this category, but those who go to either of them must expect to "rough it."

Some recent authorities who may be consulted on the Cape are—Dr Harry Leach, 'South Africa as a Resort for Pulmonary Invalids ;'* Mr Anthony Trollope, 'South Africa,' 1878; Lady Barker, 'A Year's Housekeeping in South Africa,' the latter said to be rather highly coloured; Harriet A. Roche 'On Trek in the Transvaal.'† I am afraid, however, that the present Zulu war (August, 1879), and the general unsettled state of affairs in South Africa, will scarcely render that part of the world a very favorable settling place for invalids for some time to come.

The discussion of the other diseases and conditions for which the Riviera may be recommended, though in my opinion not second in importance to

* 'Lancet,' May 18th and 25th, 1878.

† Sampson Low, 1878.

that of the climatic treatment of phthisis, may be more briefly dismissed. Among diseases of the lungs other than phthisis, bronchitis, as the destroyer of the very young and of the elderly and aged, holds the first place. In 1876, 27,899 males and 26,156 females died of it in England, while only 25,127 males and 24,668 females died of phthisis. This is a statement which perhaps some of my readers are scarcely prepared for. My authority, however, is, the Registrar-General's Report for 1876 (pp. 150-151). Of these 13,065 males died under 5 years (a fearful example of mismanagement and neglect), and 11,080 from the age of 55 onwards, while of the females 10,806 died under 5 years, and 11,964 above the age of 55, the largest number of deaths in this latter category being between 65 and 75 years. The main causes of a rise in the death-rate from bronchitis are a low mean temperature, and a prevalence of easterly winds, these two conditions occurring either separately or combined. A few days of very cold weather in any winter will, as every one knows, fill the obituary of the daily papers with the deaths of persons from 65 or 70 upwards.*

* The above was written in November, 1878, and in December a remarkable spell of cold weather, followed by an unusually severe winter (see Appendix I), wrought havoc in the ranks of the elderly and aged. Thus, in the 'Times' of December 21st, 1878, the deaths of persons above 60 ranged as follows:—Men—ages 63, 82, 67, 77, 74, 73, 68, 85, 73, 86, 81, 81, 73, 84, 71, 64, 67, 71, 61, 81, 63, 72 years. Women—ages 88, 71, 92, 89, 85, 89, 78, 64, 72, 92, 73, 82, 89, 75, 89, 86, 81, 73, 60, 82, 68, 82, 85 years.

At the suggestion of my friend Dr J. Mitchell Bruce I append the deaths of persons above 60, published in the 'Times' obituary for June 21st, 1879:—Men—ages 72, 67, 71 years. Women—ages 73, 75, 76, 63, 86, 75, 76. The ages of six men and eight women are not given.

The influence of east winds has been particularly studied by Mr F. J. Williams, of the Registrar-General's office, and he has clearly shown by comparing the weather of the years 1875 and 1876, and the mortality from bronchitis in the different months of those years, that, as Dr W. Farr expresses it (l. c., p. 251), "the east wind in spring is the enemy it was (popularly) suspected to be." Thus, in 1875, "a low mean temperature, together with a long continuance of east winds, preceded the exceptionally high death-rates in the winter and spring of that year" (l. c., p. 254), while in 1876 there was a reduction in the death-rates of *children and elderly people*, probably owing to the comparative immunity from bitter east winds in the winter and spring.

The death-rate per 1000 of population at *different* ages was 22·8 in 1875, and 21·0, or a reduction of only 1·8, in 1876, but in the extremes of life it was much greater and clearly shows the effect of extreme cold and biting east winds on the young and old. Thus the reduction of the death-rate per 1000 of children under five years, was 3·9 in 1876 over 1875, of persons between sixty-five and seventy-five, 7·3 of those between seventy-five and eighty-five, 19·6, and of the remaining few above eighty-five 50·3 per 1000.

The reduction of the rate for 1876 over 1875, for ages between five years and forty-five years, did not exceed 0·9 per 1000, between forty-five and fifty-five it was 1·6, and between fifty-five and sixty-five 3·2, so that the statement that low temperatures and east winds mainly affect the very young and the old and very old is fully borne out. The following passage from the 'Medical Times and Gazette,' Feb. 22nd,

1879, p. 209, is an additional testimony to the position here advanced :

“The quarterly return of the Registrar-General for the period ending December 31st last affords convincing proof of the fatal effects of the late severe winter upon all ages of the community. The largest proportional excess in mortality of course occurred among persons aged upwards of sixty years. The death-rate at these ages was equal to 83·7 per 1000, and was considerably higher than in any corresponding quarter since 1870, when the new form of quarterly return first afforded the means of calculating the death-rate of persons at different ages quarter by quarter. The death-rate among persons aged upwards of sixty years in the twenty large towns during the December quarter averaged 89·6 per 1000, and ranged from 72·3 and 72·7, in Nottingham and Portsmouth, to 106·6 and 110·2 in Manchester and Wolverhampton. Taking the mortality of the mild autumn quarter of 1877 as a standard for comparison, the excess of mortality last quarter, due to the low temperature, may be stated in the following manner:—Among persons of all ages the excess was equal to 12·4 per cent.; it was 8·8 per cent. greater among infants under one year of age, 7·8 among persons aged between one and sixty years, and so great as 24·7 among persons aged upwards of sixty years.”

The largest mean mortality from diseases of the respiratory organs occurs in November, December, January, February, and March, the highest (7·403 per mille) being in December, the *second* coldest month, January the coldest month coming next, with 6·256 per mille. Perhaps the explanation of this is that

the cold of December kills off so many of the very old people as to leave fewer to suffer in January ; at any rate it must be the cold, and not the prevalence of the east wind, which makes the death-rate from chest diseases so high, for December has only six days of north and four of east winds on the average of ten years (1865—74), whereas March, with a mean annual mortality of 6·018 per 1000, has nine days of north and seven of east winds on the average of the same ten years' period.

The application of these remarks is obvious. If we can place elderly persons in conditions of warmer temperature during the cold months of the year we shall diminish or entirely remove the risk of their succumbing to bronchitis, and I am convinced that persons over sixty, with the necessary means, and who show a tendency to this disease during an English winter, cannot do better than fix their habitation from November to May on the more sheltered parts of the Riviera. I know several elderly people at the present time who are able to enjoy life there and get out of doors nearly every day, while in England they have to shut themselves up the greater part of the winter, and even then get bronchial attacks of considerable severity. The following table, in which the ten years mean temperatures for the winter months at London, Nice, and Mentone, are compared, will show the advantage of the Riviera winter climate over the English for bronchial patients. The mean minima of the night are added for London, but as far as the Mediterranean coast is concerned, I have not thought it necessary to do more than repeat the statement that in the sheltered regions anything lower than a temperature of 30° Fahr. is

uncommon, and one of 24° or 25° , except on the grass, practically unknown. The absolute minimum for Nice in twenty-eight years was 25.7° Fahr.

Months.	London. 10 years' mean temp., 1865-74.	London. Mean minima of night, 1865-74.	London. Mean death rate per 1000 living from diseases of lungs.	Mentone. 10 years' mean monthly temp., 1861-77.	Nice. Mean monthly temp., 1849-76, 28 years.	Nice. Mean minima, 1849-76, 28 years.
October .	49.4	30.8	3.739	65.5	62.0	58.2
November	42.6	26.6	6.114	54.9	53.1	46.7
December	39.5	22.7	7.403	50.5	48.2	43.03
January .	38.8	21.9	6.256	49.7	47.4	42.15
February .	40.7	25.4	5.822	50.8	48.7	43.6
March .	41.1	25.4	6.018	54.0	52.0	47.8
April . .	48.8	29.9	4.864	58.8	58.0	53.2
May . .	52.5	32.5	3.477	65.8	63.9	60.4

But even more positive evidence in favour of the climate can be adduced. Thus, Dr Farina* states that since 1866 ninety-six cases of chronic bronchitis and laryngitis have been under his care, each during a single winter, with the result of benefiting the disease in seventy-three cases, and curing it in seventeen, while five cases remained stationary, and only *one* died. Fifty were males, and forty-six females. It is true that nearly half the cases were between the ages of twenty and forty years, but this is probably because the attention of the profession has been so little called to the value of the climate as a preventive and curative measure in the bronchitis of elderly people that comparatively few cases are sent out. Anyhow, it is clear that, if the frequency and mortality of bronchitis depend on low temperatures, the chances of immunity are infinitely greater

* 'Le Climat de Menton,' &c., Paris, 1879, p. 91.

where the mean minimum of the coldest month is about forty degrees Fahr. than where it is twenty or twenty-five degrees.

Dr Farina also has treated twenty-three cases of chronic bronchitis (eleven males, twelve females), whose stay at Mentone ranged from two to twenty winters, with the result that eight recovered, fourteen improved, and one, a gentleman aged fifty-four, died.

This recommendation of the Riviera in bronchitis is supported further by Prof. Lebert (l. c., p. 530), who extends it to cases of bronchial dilatation and emphysema. The contra-indications in the latter affections are, according to him, "a condition approaching cachexia, or a decided tendency to dropsy, general weakness, or emaciation."

No doubt cases of "asthma," especially those of bronchial origin, will be benefited by a residence on the coast. If one place does not suit another will, and it is easy to try the effect of residence near and away from the sea, and to choose the situation which agrees best. The climate, however, does not always do good, *per se*, except in removing the tendency to intercurrent bronchitis; and an obstinate case under my care in the winter 1877-8 was rapidly cured by a few doses of iodide of potassium, quite independently of any alterations in weather or temperature.

Dr Siordet has favoured me with the following note on the subject of asthma:—"I think most of the cases of pure spasmodic asthma are unfavorably influenced by the climate of Mentone. Two or three very marked cases, certainly living close to the sea, have fallen under my notice. Cimiez (see Nice) seems

to suit them far better ; Cannes, far from the sea, much less well. The cases of asthma dependent on marked emphysema, and kept up by attacks of inter-current bronchitis, &c., may do well at Mentone, as the exciting causes of the attacks may be guarded against." I am afraid I am one of those who are sceptical as to the existence of a pure spasmodic asthma, especially after reading the admirable essay of Dr Berkart,* which is one deserving the utmost attention from the profession. As I write this I am observing a youth, aged fifteen, who is said to be the subject of pure spasmodic "asthma," but his attacks are clearly traceable to flatulent dyspepsia, and as long as his digestion is in order, and his diet is regulated, he never suffers in the least.

Dr Berkart, I find, considers the value of southern winter climates in "asthma," whatever its source, to consist in the improvement which they induce in the general health. He says (l. c., p. 219):—"In the winter, asthmatics should reside at places where the genial climate and the beauty of the scenery both permit and attract them to spend the greater part of the day in the open air. Although other circumstances, such as the relaxation from many causes of care and anxiety, the altered diet, &c., contribute to the benefit which is invariably experienced from residence at one of the numerous (southern) health resorts ; still, the main advantage of these is that they afford opportunities for outdoor exercise at a time when, were the patient in his own country, he would most probably be confined to his room."

For convalescents from pneumonia and pleurisy, especially when the illness has occurred in the

* 'On Asthma,' by J. B. Berkart, M.D., London, 1878.

autumn and complete resolution has not taken place, the Riviera is, as I can personally testify, most valuable. With regard to chronic pleurisy, I cannot do better than quote Lebert's own words. He says:—"There are many reasons for advising a long residence on the Riviera in convalescence from a disease like this, in many ways so fraught with possible danger. The repose, the good hygienic conditions, the pure air, the mild sunny climate, can here prevent many dangers, and restore the weakened constitution to its natural state, and even to the feeling of strength and comfort." The contra-indications are the continued existence of a good deal of effusion, persistent fever, and general prostration.

It is not necessary for me to dwell on the not unfrequent relationship between chronic pleurisy and phthisis. It is obvious that a climate which will favorably affect the system at large will give the best chance of preventing the spread of mischief from the pleura to the tissue of the lung itself.

As a fact, the statistics of the mortality at Marseilles (*vide* p. 90 *et seq.*) prove that pleurisy, when it occurs on the coast, is seldom fatal.

The Riviera does not exert any special influence on ordinary valvular heart diseases, nor are the latter at all uncommon there, probably owing to the comparative frequency of acute rheumatism. Naturally the warmer winter temperature, and the possibility of living much in the open air without exertion, are elements favorable to cardiac patients. Lebert especially mentions the neuroses of the heart (angina, &c.) as capable of improvement if the patients live at a distance from the sea, and are careful to carry out

the instructions of their doctor. He also recommends the southern climate in the case of corpulent people with dyspepsia on exertion or on mounting stairs, and whom we may suppose to suffer from an accumulation of fat on the epicardium. Such patients can be out of doors and take regular daily exercise without climbing, and the action of the skin as well as the general circulation, and hence the processes of tissue change, are accelerated by the warmth. Lebert considers that there is here a danger of extension of fatty growth from the epicardium to the heart-muscle itself, so as to set up fatty degeneration and chronic inflammation of the latter. He regards the climate as only suitable to the early stages of chronic myocarditis and fatty degeneration of the heart-muscle.

Patients with valvular disease and who are still liable to recurrent attacks of acute rheumatism may, *with proper precaution*, be benefited by the Riviera climate, in so far that the attacks, which, as Lebert reminds us, "intensify the heart affection each time they occur," are either quite averted or else rendered less frequent.

Dr Siordet's experience is completely in accordance with this. "Heart diseases," he says, "do well (for the reasons Lebert mentions) if the patients can bear the journey out."

Cases of chronic rheumatism, especially muscular, are certainly relieved, if not eventually cured, by residence on the drier (western) parts of the Riviera. Gout improves if the sufferers are able to restrain their fondness for the pleasures of the table, and if the opportunity for much exercise is embraced.

Opinions seem to be divided as to the value of the

climate in Bright's disease. Lebert distinctly says (l. c., p. 618): "Chronic nephritis, with albuminuria, contracted kidney, and amyloid degeneration of the kidneys are among the diseases of the urinary organs which are unsuited for the Riviera," but he gives no special reasons for his statement. On the other hand, Dr Dickinson* points out that "on the Mediterranean coast albuminuria is extremely rare. At Genoa the deaths from anasarca and general dropsy equal 1 in 239," and he gives the proportion due to renal disease as 1 in 4303 cases, whereas it is 1 in 82 at London and 1 in 266 in Paris. He goes on to say (p. 395) that, "abroad, the choice (of a climate for patients with Bright's disease) may range over all the coasts and islands of the Mediterranean, Egypt, the Cape, and its vicinity. Among the towns and villages of the Riviera Mentone deserves especial mention as having a climate which is found to suit the subjects of albuminuria. A gentleman who wintered abroad, however, to the perfect restoration of his health and the reduction of albumen to a trace, pronounced the Riviera cold and Egypt chilly, and he was never warm enough till he got to Bombay."

The evidence which I have myself been able to gather on the coast with regard to the prevalence of Bright's disease fully confirms Dr Dickinson's view, and I may refer to the table at pp. 90, 91 for proof of the very small mortality from either albuminuria or "dropsy." At Mentone, my friend Dr Reynaud, assistant surgeon to the hospital, tells me that he can scarcely remember any cases among the natives. At present, I think comparatively few cases are sent

* 'On Diseases of the Kidney and Urinary Derangements,' part ii, "The Pathology and Treatment of Albuminuria," 1877.

to the Riviera from England or the Continent generally. Dr Siordet informs me that in his sixteen years' practice at Mentone he has only treated seven cases independently of phthisis. A very small proportion of his phthisical cases were associated with albuminuria. On the uncomplicated cases he remarks that "the climate seems to have had no result whatever, good or bad. Possibly a prolonged residence might have produced a different issue." None of them, it should be stated, spent more than one winter on the coast. In one chronic case, of over five years' standing, the patient was at any rate enabled by the climate to take walking exercise, "without which he was never well." My friend Dr Frank, of Cannes, in answer to my inquiries, tells me that he has found the Riviera "a very safe and advantageous winter residence in all forms of renal disease," and his is an opinion which must carry with it great weight.

Returning to Mentone, Dr Farina only had one case among 463 patients (not natives) of all kinds, and this recovered.

My own experience in this matter is very small. In one case under my own care albuminuria was associated with phthisis, and another, probably one of chronic parenchymatous nephritis, which I saw in consultation early in 1868, at first improved, and afterwards became decidedly aggravated, while at Mentone. This patient, however, in spite of all advice and warning to the contrary, had exerted himself considerably at lawn tennis, dancing, &c., exposed himself to weather, and in fact had done all he could to render his disease worse. A third case has come to my notice in which apparently complete

recovery from dangerous symptoms has followed a residence of several winters on the Riviera. This case alone would convince me how valuable this climate is if rightly utilised. If we hold with Niemeyer and others that "chief among the predisposing causes of Bright's disease is the temporary, and in a still greater degree the continual, exposure of the skin to the effect of cold and moisture," we shall not, I think, be far wrong in believing even, *à priori*, that cases of nephritis may be much benefited by wintering in the comparatively dry climate of the Western Riviera.

That moisture is an important factor in the etiology of Bright's disease is shown, I think, by comparing its frequency at Madeira with that on the Riviera. According to Reimer,* "Bright's disease of the kidneys is remarkably common there, both in combination with lung diseases and independently. Mittermaier observed it in ten out of twenty-eight post-mortem examinations in the hospital at Funchal," and he recommends that "no patient who exhibits traces of this disease shall be allowed to go to Madeira." When we remember that "the extreme humidity of this climate is shown by the impossibility of keeping steel instruments free from rust, or of preserving any musical instrument in tune, or any article of clothing, however carefully packed, from being injured by the dampness of the air,"† and that the mean annual temperature is 66·93°, it must be admitted that the origin of the disease cannot here be ascribed to cold.

With regard to diabetes, my observations at Men-

* 'Klimatische Winterkurorte,' p. 351.

† Madden, 'Health Resorts,' &c., p. 49.

tone are limited to three cases, two males, aged 40 and 16 respectively, and one female, aged about 48. The two elder patients had lung complications, which hastened their deaths ; the boy died almost suddenly, as some cases of diabetes do, but his state at the time was very precarious. The climate did not appear to me to exert any special influence on any of the three cases. Possibly it prolonged life a few months.

“Are nervous diseases benefited by the Riviera?” is an important question, especially when we consider the large mortality from cerebral hæmorrhage, meningitis, and “cerebral affections” generally, on the coast. (See Tables A, B, C, pp. 90—93.) One’s first impulse is to ascribe these diseases to exposure to the sun, or to the great heat of summer ; but the general impression on the coast is that abuse of alcohol has much to do with it. As to Marseilles, an educated Frenchman and Juge de Paix, who lived there for some years, at once assigned this reason for the prevalence of apoplexy on my mentioning the subject incidentally to him ; and the late Dr Bottini (quoted by Siordet)* stated that “apoplexy is of frequent occurrence, owing to the fact that the poorer classes partake freely of rum and brandy instead of wine, the cost of this latter having greatly increased since the introduction of the vine (*oïdium*) disease.” The Tables A and B, already referred to, also show that the maximum mortality from apoplexy, &c., is not in the summer but in the winter ; hence, I think, we may infer, with some show of probability, that sun heat, direct or indirect, is not a prime factor in their production.

* ‘Mentone in its Medical Aspect,’ p. 36.

Judging from the frequent connection between the disease of blood-vessels on which senile apoplexy generally depends and interstitial nephritis (granular contracted kidney), I am inclined to doubt whether part at least of the cases are not due to the latter, though its symptoms are so overshadowed by those of the cerebral hæmorrhage as often to remain unrecognised. Unfortunately I have no post-mortem statistics at my disposal to substantiate this view. The following passage is worthy of note, as showing that, for some reason or other, there is a notion abroad that the climate of the North Mediterranean coast is favorable to cerebral hæmorrhage. It occurs at p. 76 of 'The Laws of Therapeutics,' by Joseph Kidd, M.D., 1878, a work which curiosity led me to read, but which has no further bearing on the present subject. The author says: "At Pisa, in 1849, I visited an old English physician, a bedridden paralytic. 'Let me give you one caution,' said he. 'I practised for many years at Nice, and year after year I saw strong men struck down with paralysis and apoplexy, and I never warned such to keep away from Nice till I was struck down myself. Ever since it has been a cause of keen regret, aye, of bitter self-reproach. Let me beg you to warn middle-aged persons, if at all plethoric or excitable, that the climate of the Riviera—at least near the shore—is most disturbing to the brain.' A friend, however, of great experience of the climate, to whom I submitted this passage, stated that none of the cases of apoplexy he had seen among visitors were such as were not equally likely to have occurred anywhere else.

I cannot contribute any positive evidence to the question myself except of a statistical kind. I notice

that Foderé, in his excellent chapters on the diseases prevalent in the Alpes Maritimes (l. c., vol. ii), makes no allusion at all to the occurrence of apoplexy or organic diseases of the brain among the natives, so that possibly they are to be regarded rather as "diseases of modern life."

Putting aside cerebral hæmorrhage, we may briefly consider the other forms of cerebral and spinal diseases. Lebert thinks that the condition of general weakness and childishness, with or without aphasia, which often follows apoplexy, may be favorably affected by the Riviera, in so far as the latter improves the patient's health, as a whole, and renders life more pleasant. The climate has, according to Lebert, no special influence on epileptics one way or the other. Foderé, however (l. c., p. 245), states that epilepsy is "*une maladie fréquente*" along the coast as well as inland. Degenerative conditions of the spinal cord (locomotor ataxy, &c.) are only improved by the favorable effects of open-air life on the system at large.

There is a general agreement among physicians practising on the coast that neuralgic, "nervous," and hysterical cases are rather injured than improved by the climate of the Western Riviera. In a comparatively short experience I have been able to confirm the truth of this observation, and I have treated cases of hysterical convulsions, hysterical vomiting, nervous headache, insomnia, and neuralgia in females, generally from eighteen to twenty-five years old. The sleeplessness which some persons living near the sea are subject to will again be referred to in later chapters. I have only seen one case of insomnia in a male at Mentone, but I think

teaching late in the evening had something to do with it, apart from the climate and the fact that the patient was a Frenchman and of what is generally termed a "nervous temperament." Dr Siordet writes me that "the influence of the climate on nervous and hysterical disorders is generally unfavorable. Nervous phthisical females living near the sea often suffer from increased cough (independent of increased local symptoms or physical signs), from want of sleep, and loss of appetite. In the more markedly hysterical I have seen several cases of cataleptiform, epileptiform, and even tetanic convulsions. This aggravation of nervous disorders must be laid to the exciting effect of the climate. Both at Mentone and Nice I have heard also of some cases of maniacal excitement. Some patients recovered, at least for a time, after removal to the north, though they subsequently relapsed and became permanently insane."

Dr Frank's experience at Cannes is similar, and he says in a note to me, with reference to this subject, "The traditions current amongst us all as to nervous instability and hyperæsthesia in its various forms being, as a rule, excluded from the chance of being benefited here you will have found no reason to dissent from." Foderé also (l. c., p. 246) makes a similar observation, and points out that his cases occurred in women leading an active and laborious life.

Of the effect of the climate on mental diseases proper I have no experience sufficient to form a rational opinion. Foderé, however, speaks of "la folie" as "*effectivement tres-rare dans ce pays*" (l. c., p. 260.) *A priori*, the sunshine, the higher temperature, &c., of the Riviera in winter would make one

think its climate might be of benefit in melancholia, hypochondriasis, and all forms accompanied with depression. On this point, and indeed on any connected with the medical indications for the climate of the Riviera, I should be thankful if any of my readers would kindly furnish me, through my publishers, with accurate information derived from cases they have themselves sent to the South.

CHAPTER IV.

THE JOURNEY TO THE RIVIERA, THE LIFE OF THE INVALID
THERE, HINTS ON SPENDING THE SUMMER.

THE difficulties of the journey to the South of France are year by year becoming less, and a great step in advance was made at the beginning of the winter of 1877—1878 by the introduction of the Mann's Boudoir sleeping cars or Wagon-lits between Paris and Mentone, so that invalids can now travel, even at night, in a certain degree of comfort and with less fatigue than formerly, though there is still much to be done to meet their requirements. The Mann's Boudoir cars are not constructed in the same way as the well-known American Pullman's cars, in which the berths run parallel to the axis of the carriage. They have their berths at right angles to it, with a narrow passage running along one side of the carriage for the attendant, who makes the beds and looks after the passengers, to pass from one compartment to the other.

In the daytime the compartments nearly resemble those of an ordinary first-class carriage, but at night by a mechanical arrangement the ordinary seat on either side is turned into a bed, and a second berth is brought into position above it. The unhappy person who occupies the upper berth has to climb into it by means of a sort of steps, which occasionally collapses so as to defeat his efforts. The objections to the

Mann's cars are, first, the want of privacy unless the whole compartment (four places) is secured, for otherwise it is a matter of perfect uncertainty who may occupy the vacant berths; secondly, the expense, which is considerable, each berth costing upwards of forty-six francs beyond the price of a first-class ticket; and thirdly, the inadequate ventilation at night, all the compartments communicating, so that a window opened in one affects all, hence complaints of stuffy passengers to the attendant, and consequent hermetical closure of all breathing holes. Hitherto these cars have only been run by the fastest express or *Rapide*, which leaves Paris at 7.15 p.m. and reaches Mentone between 6 and 7 p.m. the following day, but it is to be hoped that they will in future be also attached to the morning express, so that patients may escape the risk of exposure to the damp night air of Paris as they are at present.

Towards the end of the season of 1878—79 wagon-lits were indeed attached to the 1.20 p.m. express as well as to the 11.10 a.m. *Rapide* from Mentone to Paris, but at the beginning of the winter only the *Rapide* was provided with sleeping-cars either way.

It is always necessary to engage berths some days before that fixed for the journey, especially at the height of the season, by writing to the *chef de gare* or station-master of the Paris terminus of the Paris, Lyons, and Mediterranean Railway. The other parts of the train best suited for invalids are the compartments called *coupé-lit* and *fauteuil-lit*. The former contains four places, for each of which an extra fee of sixteen francs beyond the first-class fare is paid from Paris to Mentone. The seats are like those of an ordinary first-class carriage, but at night three of the

seats can be made into a bed for one person by pulling out the framework supporting the cushions and raising one end by a sliding head. Under the cushion of the fourth seat there is a well-trapped closet. Both the *coupé-lit* and *fauteuil-lit* are placed at the end of a carriage, so that their occupants have windows not only at the sides but in front of them. The *fauteuil-lit* contains three places, resembling comfortable arm-chairs, the seats of which draw out at night so as to convert them into beds. The *fauteuil-lits* are more expensive than the *coupé-lits*, and have the drawback of being without a closet. For my own part I prefer the *coupé-lit* for an invalid who requires much attention if he travels by night. By taking the whole compartment he can occupy the bed, while his friend or nurse has the vacant seat. He can be absolutely undisturbed, as there is no stranger to get in and out, and the windows can be regulated at pleasure. As in the Mann's cars, it is necessary to secure places in a *coupé-* or *fauteuil-lit* at any rate a few days beforehand. At the beginning and end of the season, when the rush is considerable, places may even have to be secured a fortnight or three weeks in advance.

The sleeping cars unfortunately do not lighten the journey between London and Paris, though eventually we may hope that it will be possible to travel in them from Calais or Boulogne uninterruptedly over the Northern Railway of France, round Paris, to the Paris, Lyons, and Mediterranean Railway, so as to avoid the fatigue and worry of the break of journey between the two Paris termini which at present occurs. I am also doubtful whether there are not many patients who, even in a sleeping car, will find

a twenty-four or even a twelve hours' journey too fatiguing, and in such cases I am still under the impression that the following plan, which remains essentially as I wrote it in 1875, deserves to be followed. I am quite aware that even some very delicate patients bear the journey far better than could, *à priori*, be expected. An anonymous writer in the 'British Medical Journal,' Nov. 3rd, 1877, p. 638, goes so far as to declare that the introduction of the wagon-lits "quite obviates the necessity for breaking the journey." He also adds that "we have received very favorable accounts of the comforts with which the journey is performed" under these circumstances. I can myself recall a number of instances in which the wagon-lits have been an immense boon to invalids, but I am sure there are cases sent to the Riviera which are in too weak a state to travel far continuously even in a sleeping car. It is another question whether such cases should undertake the journey *at all*.

In any case there is the journey between London and Paris to be thought of, and I think the best way to get over it is the following:—The invalid, who has had a few days' rest in London to prepare him for the journey, should go quietly down to Dover the afternoon before crossing the Channel, and sleep at the "Lord Warden," or the less pretentious, but comfortable, "Dover Castle Hotel." In this way he need not rise so early in the morning as if he made the journey through from London to Paris in one day, and he can get himself and his luggage comfortably on board the steamer before the mail train is in and the struggle for seats begins, while if the sea is rough he can always wait a day or two until it

is smoother. I have here assumed that the crossing is made from Dover to Calais, but there is much to be said in favour of the newer route by the South Eastern Company's boats from Folkestone to Boulogne. The journey, taken as a whole, is shorter, especially on the French side of the Channel, as the piece of line between Calais and Boulogne is eliminated, and, though the actual crossing is somewhat longer, the boats used, especially in winter, are larger, more commodious, and more comfortable in every way. I have crossed in the new "Douvres et Calais" boat belonging to the London, Chatham, and Dover Railway Company, from Dover once, but only in calm weather. She is a great advance on the old boats of the Dover and Calais line, and holds a large number of passengers without overcrowding, but I do not think she is a cure for sea-sickness in persons at all liable to it, nor does she seem to be trustworthy in rough weather, as she has not hitherto run during the winter months; there may, however, be a different reason for this, namely, that the winter traffic is not sufficient to pay her expenses.

The great drawback to the Folkestone and Boulogne route is the continual alteration of the hours of starting owing to the tides. At certain periods of the month the start takes place so late in the day that Paris is not reached until night, hence the Dover and Calais route is the most generally available. Most people prefer to reach Paris the same night they cross, but if the invalid is very weak I strongly advise his stopping at Amiens, and proceeding leisurely the next morning, so as to get into Paris in the daytime. I do not recommend him to sleep either at Calais or Boulogne, partly because it breaks the journey too early, and

partly because I am not highly impressed with the hotels, especially at Boulogne. On reaching Paris the sick man should be at once dispatched to his hotel in a carriage (the Hôtel du Louvre is as good as any), and the tedious business of waiting for and examining luggage left to a friend. One clear day in Paris, quietly spent (but not in sight-seeing), is most advisable; and on the third day, leaving Paris by the 11 a.m. train, Dijon should be the halting-place for the night, and the invalid should not attempt to reach Lyons in one day. I may mention, as a warning to those who think such a precaution superfluous, that I have known a lady, by neglecting it, to be laid up for four days at Lyons, too ill from fatigue to go further; and that another friend, whose temperature had previously been normal, for several days had a rise of it to 101° Fahr., accompanied with shivering, anorexia, and increase of cough and expectoration, after similarly overtaking his strength. From Dijon it is possible to get to Lyons in good time, and without travelling very early or very late. Lyons is a bad place for chest patients to stay at; it is draughty and damp. It is better to sleep at one of the hotels near the station (Hôtel de l'Univers), leaving heavy luggage at the *depôt*, than to go to the low-lying hotels in the city. I advise invalids not to stay a moment longer at Lyons than they can help. According to the patient's strength he may either go direct to Marseilles, or stay a night at Avignon (Hôtel de l'Europe), unless the weather is at all wet or windy, when Marseilles should be the stopping-place. Here the warm clothes of the North will be found almost too warm, and it will be expedient to lighten them a little; but the invalid must

always remember to carry some kind of wrap to throw over him in passing from the hot sun into the cool shade. From Avignon the trains are convenient for getting to Marseilles before evening has well set in, and the distance is not long enough to be fatiguing. The Grand Hôtel de Marseilles and the Grand Hôtel du Louvre are both good, and, in consequence of having "lifts," are well suited for invalids, to whom many flights of stairs are necessarily trying. A day at Marseilles is advisable, and then Cannes, Nice, or Mentone may be reached the next day; or, better still, if Mentone is the destination, a night may be passed at Cannes, where the hotels are, in my experience, more suited for English travellers, and especially invalids, than at Toulon, which, *à priori*, would seem the better place. From Cannes a train which reaches Mentone by daylight should be selected.

I am doubtful what advice to give to visitors to Bordighera or San Remo as to their choice of a route. Shall they go *viâ* Marseilles, or by the Mont Cenis Tunnel and Turin? In either case they have to undergo a custom-house examination at Ventimiglia, the next station east of Mentone, or at Modane, so that in this respect the two routes are on an equality. The expense is much the same either way; if anything, it is somewhat less by the Mont Cenis than the Marseilles route. There are fast trains as far as Turin by the Mont Cenis line, but from thence *viâ* Savona to San Remo there is nothing to compare in point of speed with the French expresses on the Western Riviera, so that, on the whole, I should be inclined to the view that invalids would do best to take the French railway to Nice or Men-

tone, to sleep the night, and then quietly go on to their Italian destination in the morning.

I may here, before dismissing the subject of travelling, say a few words about the special dangers for the invalid, against which it is needful that he should be put on his guard. One of these is the length of time which travellers must spend at the railway stations to see after the registration of their luggage, to get their tickets, and, lastly, to wait, cooped up in a stuffy room, until allowed to get into the train. This can be partly obviated by allowing a friend to manage the luggage, while the invalid goes at once to the waiting-room—for, after all, it is better to rest there than to stand about in the draughty vestibule of the station; and even without a ticket an invalid will have little difficulty in entering the waiting-room. Here let me advise every one to furnish themselves with Messrs. Cook's or Gaze's *through* tickets from London to Cannes, Nice, or Mentone, by which all further trouble about taking tickets at different stations is saved, and the journey is, in that respect, made easier. These tickets allow you to stop at Dover, Calais, Amiens, Paris, Fontainebleau, Macon, Dijon, Lyons, Avignon, and Marseilles, and on the east of Marseilles, at Toulon, Cannes, Nice, and Mentone, and they are good for a month. I can personally testify to the advantage of taking them. They can be bought at the offices of the respective firms at the Ludgate Hill Circus, London, and in the Strand, and the only precaution in using them is to see that they are stamped each day at the ticket office of the station, or by the ticket inspector who stands at the door of the waiting-rooms. Until this is done the luggage cannot be registered.

Another danger to the invalid is that of going too long without food, or, what is nearly as bad, of not getting it at the right time—when the appetite is most keen. That this is a real danger will be manifest when I say that between London and Paris (an eleven hours' journey by the Dover-Calais route) only about forty minutes are allowed at Calais for refreshment, and a few minutes at Amiens; and that between Paris and Lyons, supposing one travels by the 11 a.m. express (the best train for invalids to choose, who do not travel in a Mann's car), which involves breakfasting at nine and leaving the hotel at ten o'clock, not more than five minutes are allowed at any station until Dijon is reached at half-past five, so that the fast will be a very long one unless foresight be exercised. The stoppages by the *Rapide*, or evening express, are still fewer and shorter than by the morning train. I should advise persons, therefore, unless they are going to stay several days in Paris, to bring from London with them some provision for the journey in a basket. A well-cured ox-tongue is (*experto credite*) both palatable and easy to handle, and has the advantage of keeping well, so as to come in nicely for the Paris-Lyons journey. Between London and Paris, a chicken or pheasant, or any kind of meat which is fancied by the patient, can be eaten. A plain cake, and some grapes or pears, and a small bottle of claret or sherry and water, will not be found unacceptable. A supply of rolls can always be taken from the hotel. These particulars, which may appear trifling to healthy people, are, I am convinced, of the greatest importance for invalids to attend to.

We can now pass on to speak more in detail about life on the Riviera.

An invalid who means to spend the winter at any of the southern health resorts has first to decide whether he will live in a villa or in an hotel.

Villas are best suited to people with large means, with large families, and with some experience of foreign life. To those who come abroad for the first time, and who are, as is the rule with English travellers, almost entirely ignorant of the language for speaking purposes, villas are not to be recommended. The servants are foreign, and the cook must at any rate be so, to be able to do the marketing and serve as a means of communication with the tradespeople, and English housemaids and parlour-maids, or English menservants, are more a burden than otherwise if they cannot make themselves understood in the kitchen, or hold any conversation with the natives. Besides her household, the English mistress of a foreign villa must necessarily have to deal with the washerwoman, the milkman, the grocer, &c., and perhaps with the mason and carpenter. Unless she is pretty well up in her French and Italian, she will be certainly imposed on, and suffer much mental anguish and worry. The troubles connected with villas are driving many people year by year into hotels, where there is also more society, and the only anxiety is as to the amount of the weekly bill. In a villa the occupier has to provide his own servants, and to enter into a number of engagements with regard to furniture, crockery, and other household requisites, which do not increase the mental comfort of an invalid. On the other hand, he enjoys more privacy than he would in an hotel. He has his own garden to sit in, is not forced to take his meals at other people's times, and if he has his family about him is able more

or less to retain the domestic character of his home life abroad. The price of villas varies from 1000 to 4000, 6000, or even 10,000 or 15,000 francs for the season. Flats containing three or four living rooms, with a small kitchen and a servant's room, can sometimes be taken for about 1000 francs the season.

It is always necessary to see to the drainage, the water supply, the aspect, and the elevation of villas, and in concluding arrangements with the landlord, it is the safest plan to employ the services of a good house agent. The villas in the South of France and on the Italian Riviera are nearly always detached; each with its separate garden. They generally, but not always have a south or south-west aspect, and this should be made a *sine quâ non* in selecting one, but the furnishing is not always as good as might be desired. I have many times noticed the absence of a proper carpet in the dining room, a large surface of bare tiles being exposed. The bedrooms also are apt to be very small and poky. The servants are generally French, Swiss, or Italian French. A large number come from Briga, a village not very far from the Col di Tenda, north of Nice, an interesting account of which will be found in Juliette Lamber's 'Voyage autour du Grand Pin,' Paris, Michel Lévy Frères. They are distinguished by a band of velvet round the head, which answers instead of a cap. A friend of mine of large experience assures me that southern servants are not at all more troublesome to manage than the traditional British servants.

On the whole, for the majority of invalids, hotel life seems the most to be recommended.* For a fixed

* But *Audi alteram partem*. My friend, the Rev. Henry Sidebotham, Chaplain of St John's Church, Mentone, to whom this chapter has been

sum *per diem* (about six to eight or nine francs) the hotels of the Riviera provide you with three substantial meals, breakfast consisting of coffee, chocolate, or tea, and bread-and-butter; luncheon or *déjeuner* (at twelve or one o'clock) consisting of eggs, hot and cold meat, cheese, and dessert; and dinner at six or half-past six—the regular *table d'hôte* dinner with which most people are acquainted. It is usual for breakfast to be taken separately, but at luncheon and dinner all who are not confined to their rooms by illness, are expected to sit down together. Meals at other times than the *table d'hôte* hours are generally charged one franc extra, since they involve more trouble to the waiters. Wine and beer are nearly always extras, and the prices charged for them are often exorbitant. Three francs are asked for a bottle of very indifferent *vin ordinaire*, and a quart bottle of English stout or pale ale costs two francs, or two francs and a half. The *table d'hôte* system relieves the monotony of hotel life by bringing people together, but for invalids it is far from being an unmixed good. Especially in the evening, persons must leave their warm rooms and go through chilly passages, and up and down draughty staircases to reach the dining-room; and on leaving

submitted, expresses himself as follows with regard to my remarks on life in villas:—"I think you greatly overrate the difficulties and drawbacks of living in villas. My experience (and I have tried both) is that for any number above four the saving over an hotel is very decided, and the gain in comfort enormous. If people are very incapable they had better be in an hotel, but otherwise an invalid can be much better and more wholesomely fed, the life is more quiet and natural, and people are saved from the *ennui* and restlessness which drives them to seek change often at too early a period in the season. In all the years I have spent on the Mediterranean the invalids in villas and apartments have, *as a rule*, done better than those in hotels."

it, matters are still worse, owing to the excessive heat caused by the gas and the want of proper ventilation, which makes the contrast between the temperature of the room and of the passages still more marked. For this reason invalids should take a shawl with them to put on when they leave the dining-room. By this precaution many colds may be avoided. To some persons the number of dishes, and the length of time which the meal takes, are an objection to the *table d'hôte*, but a little experience enables a choice of food to be made without taking everything handed, and it is always possible to leave the table early if desired.

The introduction of gas into the Mediterranean towns has been by no means an unmixed benefit, for it has naturally found its way into the dining-rooms and saloons of the hotels, where it does more to render the breathing air hot and unwholesome than all other bad influences put together. Rooms which on the old plan of lighting with candles or oil lamps were quite large enough for the number of people using them, are now much too small, for the gas burns up such an enormous share of the available oxygen, while it pours into the space it has usurped quantities of carbonic acid, sulphurous acid, and other products of combustion.

It cannot be denied that sick persons are often their own enemies as far as ventilation is concerned in these cases, for they insist on all windows and doors being shut in a way that would startle a medical officer of health ; and in this respect foreign invalids, and especially Germans (*vide* p. 114), are tremendous offenders, though I am sorry to say that some English persons run them very close in point of stuffiness, yet

in spite of everything said and done the greater part of the blame must be laid on the gas, which, I believe, it is practically impossible to ventilate for adequately.

Probably the majority of the people who visit the south adopt the French custom of using one room as bed and sitting room. Private sitting rooms exist, of course, in all the hotels, but they are too expensive for any but those with rather large means. The price of a south room with one bed will generally range from four to six francs, a double-bedded room from six to ten or twelve francs *per diem*, in the best hotels. North bedrooms, which in midwinter are best avoided by invalids, are cheaper. The fuel used for warming purposes, both in villas and hotels, is chiefly olive wood, which is very compact and gives out a very fair amount of heat; for cooking, coal is being largely introduced. With the present rate of increase in the health resorts of the Riviera and the great demand for fuel, it seems impossible that the supply of olive wood can continue indefinitely. Even now a small basket costs at least two francs and a half, and the price must rise still higher before long. Happily, in fine weather no fires are needed in the daytime, except perhaps in the early morning, and often not even at night, and in a moderately good winter a person with a south room will scarcely need a fire on twenty days. After the end of February one is seldom wanted at all.

A public reading room or *salon* is universal, and English and foreign papers are always provided with greater or less liberality, according to the hotel. For those who play, there is generally a piano in the *salon*; and at some hotels there is a small library of works of fiction. For my own part, I should strongly

advise invalids to frequent the *salon* as little as possible in the evening, unless the ventilation is better than it has as yet been my fortune to find it. When an hotel is full the size of this room is disproportionately small compared with the number of people who use it, and the gas and overcrowding make the atmosphere very injurious. There is, no doubt, a great temptation to those who are fond of society to join the social circle in the *salon*; but the risk is not worth the consequences which it may entail.

The out-door occupations of a visitor to the Riviera do not require a very detailed description. The most ordinary form of exercise is of course walking, and in fine weather, even in midwinter, invalids can generally be in the open air by nine, or half-past nine in the morning and continue there until lunch time. In calm weather and in moderately sheltered situations there are few fine days on which it is impossible to sit out of doors at some time of the day, but there is no doubt that, taking one day with another, the morning is the calmest time as a rule, especially near the sea-shore. Between twelve and one o'clock on sunny days the sea breeze springs up, and sometimes blows with sufficient force to prevent sitting out of doors; but, as far as I have observed, the sea breeze scarcely reaches more than a mile inland. In the afternoon in midwinter walking or driving can be indulged in up to three or half-past three o'clock; later on, in February or March, invalids may stay out even till five or six o'clock, but it is always advisable to be under cover at, and for an hour or two after, sundown, when the temperature falls considerably, and there is sometimes a heavy deposition

of dew. With this reservation I am not inclined to regard the night air on the Mediterranean coast as so dangerous to invalids as it is generally supposed to be, and I find this view, which I have formed independently, confirmed by experienced observers, for example, Lippert.

The evening hours are perhaps the most difficult to dispose of, but when people begin to know one another in an hotel it is possible to pass the time in conversation, and in playing whist, chess, or other games. The hour for bed is also earlier than in England, and people begin to think about retiring soon after nine o'clock. There is one disadvantage in combining bed and sitting room in one (which is so common on the Riviera), namely, that it is difficult to ventilate the room thoroughly before going to bed. As the windows open inwards like doors and often reach to the ground, it is not easy to regulate the amount of air which enters at once, and if the windows are opened wide with a candle in the room, in come the mosquitoes. These plagues, which are very numerous in November, happily become fewer as the winter goes on, but to unwary or inexperienced visitors they may be a great nuisance in the early part of the season or even later. They remain torpid during the day, but immediately after sundown begin their operations. Although they betray their presence by their hum, they are not easy to destroy, and they often manage to escape detection altogether until their victim finds his face blotched and bitten in the morning. The marks they leave on the face and hands (if exposed) remain from ten days or a fortnight; and the fact that one lady has counted 195 bites on her face at once, proves that

the Mediterranean mosquito is an insect not to be disregarded. Curtains are generally provided round the beds, but they are not always of the right sort, and are so thick and heavy that the occupants cannot sleep under them. Invalids should stipulate for net curtains, if they are not already provided. To escape the annoyance of mosquitoes it is well to carefully examine the inside of the curtains before letting them down, and also to look for them on the walls of the room, and put an end to their days with the sole of a slipper; and, lastly, the candles must be put out before the window is opened.

It may be some comfort to invalids to know that mosquitoes have a special predilection for healthy people, and that the chief annoyance *they* are likely to suffer from them is from their hum, which, however, some people consider more annoying than their sting. The mosquito generally commences operations just as his victims has fallen into his first sleep, and these insects, which closely resemble the common English gnat, seem to attack the ear by preference, so that all but the heaviest sleepers are sure to be roused. Sometimes, and I think chiefly in spring, they leave the sleeper unmolested until three or four a.m., and then continue their attacks until daylight. Among the various expedients for warding off these pests, besides those above enumerated, I may mention the use of a weak solution of carbolic acid to the face, anointing with oil of cloves and glycerin, burning pastiles containing gum benzoin in the room just before going to bed, and, lastly, keeping a plant of *Eucalyptus globulus* in the bedroom. Of the value of the latter expedient I am extremely sceptical. The mosquitoes usually die off about the middle of

December, and it is possible to sleep without curtains until about the middle of April; in May and during the summer they become intolerable, and in the very warm weather even a net is scarcely a protection against them.

There is one nuisance even worse than mosquitoes, which invalids occasionally have to suffer from, and which is connected with the almost complete monopoly of the building trade, and of hard manual labour, such as excavating, by Italians on the French Riviera, namely, the habit of roaring in chorus through the streets late at night which the Italian workmen indulge in. I have experienced it myself at Mentone and Cannes, and it probably exists just as much elsewhere, for Piedmont labourers are ubiquitous. In North Italy itself, for example, at Genoa or Florence, this chorus singing in the small hours of the night is intolerably common. Mr Ruskin* expresses himself thus forcibly on the subject—Mr Whistler might indeed complain that his language is a trifle too forcible—"Of bestial howling and entirely frantic vomiting up of hopelessly damned souls through their still carnal throats, I have heard more than, please God, I will ever endure the hearing of again in one of his summers." I think it is clear that Mr Ruskin does not like music at all, else he would scarcely fulminate in this way at the poor Italians, for they can sing in parts *impromptu* in a way that Englishmen are quite incapable of attempting, and though awakened by them I have not always been able to refuse them my admiration. I think, however, the middle of the night is not the time either for singing or "bestial howling," and the police ought to

* 'Mornings in Florence,' No. V, "The Straitgate," p. 135.

exert their power, if they have any, to put the nuisance down whenever it occurs. I believe complaints to the police from all persons thus annoyed, if possible on the next day, would do much good.

It is not *necessary* for invalids or their friends to burden themselves by carrying out any of the smaller necessities of life, biscuits, potted meats, preserves, &c., as they can be bought at a fairly moderate price at all the French health resorts, and also at Bordighera and San Remo, while further east they can be readily procured from Genoa. It is a good thing, however, to bring out a few pounds of tea, the duty on which, if declared, is only one franc a pound, and a supply of soap is also to be recommended. English prescriptions are dispensed in all except the smallest Italian health resorts, and generally by English assistants, and in spite of the present French law, which forbids the importation into France of nearly all foreign patent medicines and all compound preparations of foreign pharmacopœias, for example, *sal volatile*, English patients can depend on having most of their wants in this respect properly supplied. In Italy there is no such prohibition as the above.

I should like, in conclusion, to make a few remarks on points which have specially impressed me during the past few winters in reference to invalids, in the hope that they may be of use to those who have to advise patients coming to the South of France. And, first, I think every one who is sent there should, if not in really good circumstances, be warned that living in the south is an expensive thing, and it should be put to him whether he can really afford it or not. One sees persons who are not well off sent out and obliged to take rooms that are miserably small,

perhaps up in the very roof of the hotel, and with scarcely any sun, and in other ways so to pinch and spare that a great part of the benefit of their visit is lost ; in fact, they may be worse off than if they had never come. Cannes, Nice, Mentone, and San Remo, are all getting somewhat dearer year by year ; and since, by a kind of trade-union arrangement, the hotel-keepers of the three former places have agreed to regulate their business in common by a so-called syndicate or committee, there seems little hope that honest competition will bring prices down, for as long as there are people enough to fill all the hotels, as there are in good seasons, the syndicate will hold together. What we must wish for is an increase in the number of hotels beyond the demands of the public, and then the syndicate, like the league of the three emperors, being founded on self-interest, will, when interests diverge, probably collapse. Good pensions in the style of those in Switzerland, and kept by English people, are much wanted ; and hotel-keepers, if they would avoid cumbering their rooms with unnecessary decorations, expensive clocks, and such-like, might be able to charge much less without losing their profits. Those persons who wish to live moderately in the south must not mind a little bargaining as to terms at the outset, for a little pressure will, if firmly applied, sometimes obtain an appreciable reduction ; and it is better at the beginning of the season to go to another hotel than to submit tamely to the charges which, once settled, will be a burden throughout the winter. To persons at a distance these remarks may seem trivial, but they will find their application if they ever come face to face with the reality.

Another point which I think deserves attention is this; that invalids should not be sent to the south alone. It is not uncommon to meet young men with incipient phthisis who are all by themselves. In such cases home-sickness, with considerable depression, sometimes develops, especially if the weather is bad for a few days, and they have to keep indoors. In other cases the patients, having no one to look after them, become careless about their health, and feeling stronger under the influence of the climate, over-exert themselves in walking and dancing, frequent hot rooms, go out at night, and (at Mentone and Nice) are tempted, sooner or later, to run over to Monte Carlo and try their luck at the gambling-tables. Lastly, if such invalids get laid up from their indiscretions, they have to depend on the tender mercies of the hotel people and of any friends they chance to have made for assistance and nursing, and the feeling of solitude becomes, as I have seen it, aggravated to a degree which reacts most injuriously on the sufferer. I strongly advise my medical brethren, therefore, not to let their patients leave England unless they know they will be well looked after by some trusty friend or relation.

The third and last point about which I would speak is that of medical advice on arrival in the south. I have met with several persons who have been sent out by their doctors at home with the simple instruction to go to Cannes or Mentone for the winter, and without any orders what to do when they reach these places. I am convinced that every invalid should be seen once at least by a medical man as soon as possible after his destination is reached, and this is the more imperative if it is a first visit to the particular

place. By so doing the physician can advise as to the best situation for the patient to live in; he can regulate his habits in accordance with his state and the character of the climate; while if at any time the disease makes fresh progress he has the means of making the necessary comparison with the previous condition, and possibly of allaying much unnecessary apprehension. It is quite true (as I think Dr C. T. Williams has remarked) that invalids require less medical attendance in the south than they would in England; but they cannot dispense with it, as some seem to think, altogether, and I believe that one medical examination at the beginning of the season is the most likely way to avoid several later on, and is, therefore, the most economical proceeding in the long run.

In concluding this part of the subject I would warn all medical men who have any influence over their patients not to let them return to England or the North of Europe (as patients are very apt to want to do) too early. Those who take advantage of the first fine days in the end of March or the beginning of April to quit their winter homes are pretty sure to suffer in consequence, and to be laid up ill on the road at Lyons or in Paris. For the last four springs I have myself never started homewards before the third week in May, and I can conscientiously say that I have each time reached the north too early rather than too late.

A very intelligent non-medical writer, Mr C. Home Douglas,* whose testimony may be accepted as absolutely impartial on this point, says (p. 179): —“I may here say that I have never yet known an

* ‘Searches for Summer,’ 1874, W. Blackwood & Sons.

instance of an invalid leaving the French Riviera before April who has not had good reason to regret having done so." And again (p. 195), "No invalid depending on temperature should think of leaving the Riviera for Montreux, or *any* of the Swiss stations, before May."

I may also quote, as no mean authority on climate, Dr J. Henry Bennet,* who, in a very useful article "On the Genoese Riviera in Spring, and on Swiss Mountain Stations in June," has the following remarks:—"Invalids had better not leave the locality where they have wintered, or its vicinity—Hyères, Cannes, Nice, Mentone, San Remo—until the end of April, on account of the cold east winds of the north. This rule, however, does not apply if they are well enough, and enterprising enough, to go further south, as, for instance, to Ajaccio, Algiers, Tunis, Palermo, &c. By the end of the first week in May, however, they had better seek cooler quarters more north. Those who are well or quite convalescent can remain, generally with perfect comfort and safety, until the end of May, but not later."

I entirely agree with these remarks, except that I should be inclined to reverse the force of the last two sentences, or, at any rate, to make the last one applicable to genuine invalids, for I am sure they run far more risk by leaving the Riviera early than "those who are well or quite convalescent." I think it is a good thing, however, for invalids to have some kind of change two or three weeks before they take their northern journey, and I am sure patients from San Remo or Mentone often do well to go to Bordighera or Cannes as a preparatory measure,

* 'British Medical Journal,' Sept. 7, 1878, p. 349.

these places being in the warm weather cooler and more bracing. One thing is quite certain, that no absolute rule as to the time of going north can be laid down, except that it should not be before April 15th. Consecutive seasons vary so much in temperature that exact calculations are impossible, but it is well to remember that, as Mr Glaisher has shown,* there is almost invariably a depression of temperature over Europe in the second week of May, accompanied with easterly winds. In any case, by waiting to the end of April or to the middle of May there is more chance of settled weather in the north, and less risk of undoing the winter's work. There is very little hardship in staying awhile where all is so beautiful; where the air is mild and balmy, both night and day; and where nature wraps herself in her choicest mantle of leaves and flowers.

I cannot close the present chapter without saying a few words on the subject of the summer residence of invalids, especially consumptives, who have passed the winter season on the Riviera, though I do not pretend to enter fully into it here or to deal with it except in rather a superficial manner. What follows must be regarded as mainly of the character of hints, founded partly on my own experience and partly on that of others.

There is no doubt that persons with slender means, and those who are bad travellers, feel the journey to and from England every spring and autumn considerably, the expense, in the one case (£10 *per* head each way), and the fatigue, in the other, being factors not to be disregarded. On more than one

* 'Quarterly Journal of Meteorological Society,' No. 20, October, 1876, p. 219.

occasion in this book I have pointed out the inadvisability of attempting to remain on the coast itself in summer. Hence the question arises, Where shall an invalid, with whom expense is an object or who cannot bear a long journey, pass the months from May to October? At present there is very little choice in the immediate neighbourhood of the Riviera, and the only place I know of which deserves to be considered in detail is St Martin Lantosque, a town of about 2000 inhabitants, lying forty miles to the north of Nice, at a height of 3120 feet above the sea level. The town is built in straggling fashion on a spur of the mountain between the torrents of Borréon and Fenêtre, which afterwards unite to form the River Vésubie. It consists of a steep street with a few lateral alleys. The hills rise to a considerable height on the north and west. Those which send down the spur on which St Martin stands have a due easterly direction. Below the town in the valley are meadows, which are flooded at stated intervals, and, according to some people, render the neighbourhood damp. Foderé remarks (l. c., vol. ii, p. 247) that intermittent fevers (*les fièvres d'accès*) occur at St Martin, "which is not more marshy than other parts of the country, but which has a very humid atmosphere." He also states (p. 232) that "the greater part of the population is goitrous," and that in his time there were fifty "*cretins de naissance*" there, but I understand that this is no longer true.

Accounts of the climate at the present day vary. Some visitors report the presence of "fevers" in the town, whether typhoid or malarious I have not been able to determine; but the hotels and pensions are all outside the town and so are probably healthier than

it is. Others complain that the valley is exceedingly draughty, as all mountain valleys are apt to be, and that the air is never calm; while, again, others praise the temperature, the bracing air, and the general delightfulness of the country. A friend, who spent the summer of 1878 at St Martin, told me that he did not register a temperature below 60° Fahr. the whole time, and that the heat was at no time oppressive. I know of several invalids who have "summered" at St Martin with benefit, and not a few have been so favorably impressed by the climate as to return a second time. The scenery in the neighbourhood is charming and varied, Alpine throughout, and sometimes rising to the sublime, and the road from Nice often recalls Switzerland. Within a comparatively easy distance to the north there are the snow mountains, with their glaciers, their rushing torrents, and pine forests.

Year by year St Martin attracts more summer visitors, including many English. For their accommodation there are the "Hôtels" des Alpes and de Paris, and pensions kept by Dr Müller of Mentone, and by the proprietress of the Pension Anglo-Américaine at Mentone, both well spoken of. *Pension* prices about seven *francs* a day. A third pension has, I hear, been started this summer. There are very tolerable shops in the town, and one of the best Mentone provision merchants is established there during the season. There is always a resident medical man, English, French, or German there, and a good chemist. The journey from Nice is made either by diligence or private carriage in eight or nine hours. St Martin can be reached from Mentone or Cannes in one day, but it is best to sleep at Nice and

start in good time in the morning, on account of the heat. The season at St Martin does not begin before June 1st. This is, in some respects, a drawback to persons intending to go there, because by the middle of May, as a rule, the best hotels and pensions on the coast are shut up.

I have spoken above of St Martin Lantosque as the chief summer station for the Riviera, but there are some smaller and less known villages on the east side of the same valley of Vésubie, which deserve at least a mention. The first of these, about two hours' drive below St Martin, and at a height of about 2200 feet, is Bollène (721 inhabitants), in a picturesque situation and not very hot. The Hotel Lavit has fair rooms and a good table. Higher up, in fact, at no great distance from St Martin itself, are the villages of Berthemont and Belvédère (1210 inhabitants). The former of these possesses warm sulphur springs and a bathing establishment, and has two hotels—Lavit, very good, and Vitale, fair—as well as some villas. It is cool and has fine scenery. At Belvédère, a pension was opened in 1878 by an Englishwoman. These three villages are all much higher above the River Vésubie than St Martin.

Above St Martin, in the valley, a modest pension has also been opened at La Cascade, near a fine forest, high up and cool.

From all these places there are plenty of interesting walks or rides on muleback; for instance, to Mont Clapier, the point where the Apennines break their connection with the Alps. There are several passes into Italy from the Vésubie valley, such as the Frema-Morta (8000 feet) and Col de Fenêtre, and in reaching them small glaciers are seen and lakes

containing trout, and occasionally a chamois may be glimpsed. These passes lead to the Italian summer stations Vinadio and the baths of Valdieri and a little further north to that of Certosa di Pesio.

In consequence of its nearness to Nice, Mentone, and Cannes, a prosperous future may be predicted for the Vésubie valley; but popularity will not be due to its merits alone, great as they are, for they are shared by many a spot along the whole length of the Apennines.

In the adjoining valley of the Roya is the station of St Dalmas di Tenda, on the high road from Nice to Coni, and about fifty-three miles from Nice, at a height of 3500 feet. It has a bathing establishment, formerly a Carthusian monastery, and a tolerable hotel (*des Princes*), and there are fine views in the neighbourhood. From Lucéram, on the above route, a military road will soon be finished along the summit of the mountain range to Fontan, a few miles below St Dalmas. It will give access to some high plateaux, 4000 feet or more above the sea, well wooded and watered, and which promise almost faultless sites for summer stations. They will afford more level walking ground, and probably be less draughty than the valleys.

To the east of Mentone the baths of Pigna are in too hot a situation, and have no hotel. Higher up, on a mountain top, is Bajardo, beautiful and cool, with grass slopes and chestnut and pine woods, but it is deficient in accommodation, and has no proper road to it. Not far from it, behind San Remo, is San Romolo, frequented by the San Remese, but exposed to sea fogs.

Behind Cannes, and more than thirty miles above

Grasse, is the Château de Thorenc, with a pension of forty beds, open from June 1st to October 15th, and well spoken of. There is a fine pine forest close by.*

This concludes the list of possible summer health resorts on the Riviera, of which St Martin and its adjoining villages appear, as yet, to be the most eligible. If one of these be not selected as the summer residence it will be necessary to travel much further from the Riviera to find a suitable resting place. It is a good way to the Pyrenees, where Amélie les Bains and Bagnères de Luchon, as well as Caunterets and Eaux Bonnes, are much frequented by the French during the summer months. It is a good way to Switzerland, which is about the only other part of Continental Europe which phthisical invalids can be safely sent to, unless we except some parts of Tyrol and the Salzkammergut, for example, the Achensee and Berchtesgaden, places, however, more difficult to reach than the average Swiss health resort.

There is a great deal to be said for Switzerland, and much against it. It is cheap, and you can get good *pension* for 6—8 francs a day. The hotels are generally clean, comfortable, and well conducted. The food is good and substantial. The air on the hillsides is pure and invigorating, the scenery is as varied and picturesque as the most fastidious can desire, and you can suit yourself to lake, mountain, or forest. Locomotion is easy considering the nature of the country, and if trains are slow on the other hand, accidents are of the rarest. There is a large choice of pleasant spots at various heights, where

* I am largely indebted to my friend Mr J. B. Andrews for the information contained in the previous pages.

you can stay, as Dr Bennet has shown in his papers published last year,* and, as plenty of English people know by experience; on the other hand, there are few places in Switzerland where the interests of the invalid are considered. Everything gives way to the tourist in summer—the tourist with his knapsack, his boisterous spirits, his indiscriminating appetite, his hob-nailed boots, and his abominable lingo, neither French nor German. In summer the tourist is supreme, whether he invades your would-be solitude by parties of two or three, or in Cook-led multitudes of fifty or sixty. In the higher regions of the fabled “immunity-from-phthisis” zone he is supreme. He rises at 3 and sometimes at 2 a.m., and the sound of his bath wakes you through the thin pine-wood wall. The night is his, and, with calm indifference to the surrounding sleepers, he stamps with his heavy feet and whistles in the corridors. All this, and much more, without the least exaggeration, the tourist, and most all of the British tourist, does to annoy his fellow-men and demonstrate his own selfishness. In so doing he renders some of the best parts of Switzerland unfit for the abode of delicate people.

Another serious drawback to Switzerland is the difficulty of escaping the heat in July and August. This heat makes the shores of the lakes, and many of the valleys, intolerable even for healthy people, during those months, and it is fatal to phthisical patients. Moreover places 2000 to 3000 feet above the sea, such as Glion sur Montreux or les Avants, which are excellent, especially the former, in early summer and in autumn, are too hot at midsummer for this class of cases.

* ‘British Medical Journal,’ Sept. 7 and 21, 1878, “Summer Mountain Stations in Switzerland.”

It might seem easy to go still higher to 4000, 5000, or even 6000 feet, but by doing so there is the risk of being in the clouds if the weather turns bad, and of having to undergo the annoyance as well as the danger of living in a raw damp atmosphere, eminently favorable to renewing catarrhs, in houses only intended for fine weather. It is not a cheering state of things, even for a healthy man, to be huddled up with a lot of other people in a tiny sitting room, with no view but the fog; and for an invalid it is depressing to the last degree. Besides the tramp and bustle of tourists and Alpine Club men, alluded to above, a great objection to Alpine health resorts, is certainly the sudden and severe change from fine weather to cold, rain, or even snow, which is so common. The nearer one is to the bracing air of the snow fields and glaciers the greater the chance of this kind of *contretemps*. I have experienced it myself several times, and speak feelingly on the subject. The amount of roughing it, which the Swiss mountain life entails, must be taken into consideration in sending cases at all high. The journey must be performed on horse or muleback, or with a *chaise à porteur*. The roads are rough, the food of the inns not always very tempting to a weak stomach. Besides this patients with considerable damage to their lungs may find their breathing oppressed and difficult at 6000 feet; doctors have to be summoned, if accidents occur, from the nearest valley-town, generally some miles away, and it may be necessary to send to Geneva for medicines, and wait a day or two till they come.

Hence my own view, founded on some direct experience, is rather opposed to the idea of encouraging phthisical patients, except in the earliest

stages, if at all, to escape the heat by climbing the hills. After all, the amount of fatigue which they must bear in doing this is not so much less than that required to accomplish the journey to England as to make them choose the former alternative instead of the latter, if it is a mere question of fatigue. There is no doubt that the shores of the Lake of Geneva, with its delightful villages of Clarens, Montreux, Glion, &c., and the Rhone valley, in the neighbourhood of Bex, with its offshoots in the direction of the Diablerets, and the Val des Ormonts, are excellent places for invalids from the beginning of May (not sooner) until the end of June; but with the heat of July and the invasion of tourists I believe our patients do better to return to England than to run the risks of weather and of disturbed quietude in the Engadine or the Oberland, at St Moritz, or Mürren. So that, to sum up, if expense is an object, probably St Martin Lantosque would be the safest place to try; if fatigue—and to many persons the Channel passage is the most trying part of the journey home—perhaps Switzerland till the end of June, and some Northern French seaside watering place during the summer heats, would be the best places to spend the summer at. But, after all, I agree with the opinion expressed, I think, originally by Dr H. Bennet, that England is the place to pass the summer. In any case the choice of a summer resting place is of the utmost importance for phthisical patients, and it cannot be too much impressed, either on the public or the medical profession, that those afflicted with this disease *suffer more from excessive heat than from any degree of cold.* I have *italicised* the last part of the above sentence

to call attention to it as prominently as possible. I shall not attempt to offer proofs of the statement it contains, because its truth is well known to every one who has observed phthisical patients in hot weather. Heat weakens them, ruins their appetites and digestion, makes them perspire, and intensifies their symptoms as a whole. I have constantly found, however, that if I tell an intelligent layman that heat is bad for consumptive patients, he asks, "Then why are they sent to warm climates like the South of France?" And there is great difficulty in making him understand that, in the first place, the South of France in winter is by no means a "warm climate" properly so called, but only one in which the cold of the northern winter is tempered and rendered less severe, and in which invalids are able to carry out that great object of the climatic treatment of phthisis, viz. *the spending as much time as possible in the open air*. As a fact, we who have dealings with the patients sent to the South of France and the North Mediterranean coast of Italy are averse to their arriving before the autumn rains have cooled the air, or remaining after the days and nights begin to get hot and oppressive. *A priori*, I should be inclined to believe that the cases of hereditary phthisis occurring among natives of the coast are aggravated, and their progress accelerated by the summer heat. At any rate, they are said to run a very rapid course.*

These remarks are, perhaps, a little out of place here, but seeing the way in which our British public still clings to the pernicious and intensely destructive idea that a stove heat indoors and out is the thing

* See on this point Foderé (l. c., p. 257), and Farina, 'Climat de Menton,' pp. 86, 87.

for persons "in a decline," I could not let the opportunity pass without a word of protest. On the other hand, I am not an advocate for freezing patients instead of roasting them, as some people seem to be just now, and I believe the happy mean between the two extremes will be found in the end the safest and the most judicious.

CHAPTER V.

THE HEALTH-RESORTS OF THE FRENCH RIVIERA.

NO. I.—HYÈRES.

IN the present and subsequent chapters I shall describe the health-resorts of the French and Italian Rivas as far as they interest us as medical men, with reference to therapeutics. Beginning on the west, I shall take each of the most important places in succession from west to east. By adopting this order, I shall have to speak first of one of the oldest, if not the oldest, health-resorts of the Riviera, namely, Hyères, to which the present chapter will be devoted.

Unlike the other health-resorts of the French and Italian Riviera, Hyères is situated at a distance from the sea, and separated from it by a plain about three miles broad. A common superstition in England represents it as placed on an island, but the idea is based on a confusion of the town with the group of islands of the same name (*Îles d'Hyères*), which lie off the coast, and consist of three principal islands and several islets, forming a chain nearly parallel to the shore, and from two to three miles distant from it. Hyères is the southernmost watering-place of the French and Italian Rivas, lying in $43^{\circ} 7'$ North latitude, or very nearly in the same latitude as Elba. It is a town of 12,000 inhabitants, according

to the most recent statistics, and is built around the base and on the south-eastern flank of a conical hill about 700 feet high, which is known as the Château Hill, owing to its upper portion being enclosed by the fortifications, and its top crowned by the remains of an old castle of the tenth or eleventh century, which, especially on the north and east side, present a very picturesque appearance. An excellent idea of the general relation of the town to its surroundings may be obtained by climbing to the top of the Château Hill, the view from which commands a wide extent of country. On the east and north-east rise up the Montagnes des Maures, which close in the plain of Hyères, and project in the form of a promontory into the sea, sheltering the district to the west of them to some extent from the easterly winds. The western and south-western boundary of the view consists of the fir-clad Montagnes des Oiseaux, the highest peak of which is about 1000 feet above the sea, and a lower ridge, La Colline de l'Ermitage, which runs in a southerly direction from them to within half a mile of the sea, where it slopes rapidly to the plain, and is crowned by a votive church revered by mariners, some of whose votive tablets date back to A.D. 1612. Between these two ranges of hills the ground is nearly level, except within about a quarter of a mile of Hyères, where it rises at a very moderate gradient. The neighbourhood of the sea is swampy, and to the east-south-east there are well-defined marshes, but the bulk of the land is under careful cultivation, and the eye readily distinguishes large tracts of pasture and arable land in the distance, and of acres of market gardens nearer the town. To the right and left of

us, close to Hyères itself, there are considerable numbers of olive-trees, and the red-brown roofs of the older houses lie nearly below us massed together near the base of the Château Hill, but more on its eastern than its western face; while the visitors' district (hotels and villas) spreads out like wings on either side. The Islands of Hyères (already mentioned) must not be omitted in describing the view. The two easternmost of the three—L'île du Levant and L'île de Porteros (*Port creux*)—are separated by a wide gap from the third, or L'île de Porquerolles, which is the largest, and lies nearly due south of Hyères, very close to the Presqu'île de Giens, an island which is converted into a peninsula by two narrow parallel banks of sand about two miles long, so that the entrance of ships between it and the land is only possible from the south on the side of the islands. The strip of sea thus embraced between the peninsula, its isthmus, and the mainland, is called the road-stead, or Rade d'Hyères, and is a most valuable harbour. It is utilised by the French Government as a station for their training-ships, and as a practice-ground for gunnery. From the western side of the Château Hill there is also a good view over the wide valley of Hyères; which runs down from Toulon in an easterly direction; and is traversed by the carriage-road to Toulon, and the recently opened railway which now connects Hyères with the main line between Marseilles and Nice. The southern boundary of this valley near Hyères is formed by the spurs of the Montagnes des Oiseaux, and the northern and north-western by a range of high hills which run from the back of Toulon nearly parallel to, and a few miles from, the coast, and culmi-

nate about ten miles north of Hyères in the grim bare peak of the Coudon, above La Farlède. Still nearer Hyères, a spur of the Château Hill, running in a north-westerly direction for two miles to its highest point at the Mont Fenouillet (900 feet), narrows the termination of the valley at its entrance into the plain of Hyères. The valley of Hyères is thus protected to a considerable extent on the south, and almost completely on the north, but is exposed on the west, north-west, south-east, and east. We shall presently see that the chief blot on the climate of Hyères depends on the permeability of this valley by wind in these latter directions. To the *east* of the Château Hill, the spurs of the latter (Les Maurettes) form a very fair protection from northerly winds for about a mile and a half due east, as far as the valley of the river Gapeau, a small stream overshadowed by poplars and wych-elms, and more resembling a quiet English river than almost any I have seen along the Riviera, and which runs into the sea in the south-eastern corner of the plain of Hyères, near the Old Salterns (Vieux Salins).

The amount of protection from north-easterly winds enjoyed by Hyères is very considerable. By ascending the highest point of the Montagnes des Oiseaux to the west of the town (about 1000 feet high), at least four graduated ranges of hills and mountains can be counted behind the Château Hill, the most distant being capped with snow even as late as May. Due north of the town the protection is less complete, and to the east and east-south-east the mountains (Des Maures) are not nearly so high as, and are further off than, on the north-east.

The climate of Hyères is in many respects a very

mild one, as might be expected from its latitude and its sheltered position. Roughly speaking, it is about 10° warmer than England. In the depth of winter the thermometer seldom falls below 44° or 45° Fahr., and rarely reaches 32° . Minimum temperatures of 24.6° Fahr., 21.7° and once of 10.6° Fahr., (on January 11th, 1819), have, however, been recorded, and it is interesting to note that in the years from 1810 to 1850, the minimum of the winter occurred nine times in December, twenty times in January, eight times in February, and three times in March. The mean temperature in December, January, and February, ranges between 50° to 55° in the shade, and 77° to 86° in the sun (Honoraty). The town and its immediate neighbourhood are about 2° to 3° Fahr. warmer than the district near the sea. Dr de Valcourt gives 59.9° as the mean shade temperature for the autumn, 46.4° for the winter, and 59° for the spring ; and a present resident at Hyères told me that the highest shade temperature he had seen *in his house* in summer was 81° .

Good temperature observations with modern instruments, and carried on for several years, are sadly wanted at Hyères.

The curse of Hyères, if we may so express it, is the north-west wind, or mistral, which not unfrequently rages with great violence, sweeping in tremendous gusts (*experto credite*) down the valley of Hyères on to the town or plain. This wind, the magistral (*magister*), or master wind, as far as my own observations go, almost invariably blows when the sky is clear, and the sun warm. It rises about 10 a.m., and blows until sunset, or for an hour afterwards, and occasionally continues also to blow during the night. The simplest explanation of its mode of

origin appears to be that it is due to the inrush of cold air from the north into the partial vacuum caused by the ascent of rarefied air from the heated coast ; it seems, in fact, to be strictly analogous to the sea-breeze which springs up with the sun and subsides after the heat of the latter is withdrawn. The mistral blows with the greatest severity during the prevalence of northerly currents ; and the reason why its direction is from the north-west appears to be, that the high mountains prevent the immediate descent of cold currents from north to south, and compel them to turn round their western flank, and so find access to the coast. The mistral blows at Hyères on upwards of sixty-four days in winter, spring, and autumn, according to the observations of Dr Battaille* for the years 1816–25. But on many of these days, especially, as far as I can learn, in midwinter, no doubt its force is but slight. As Dr de Valcourt remarks (l. c., p, 111), “ the north-west wind is no rarity (*est assez fréquent*) in winter ; but at this season its velocity is not very great, so that it is much less to be feared than in Spring, when it blows with all its force.” I can confirm Dr de Valcourt’s statement about the mistral at Hyères in the spring, for in 1877, I myself noted it fifteen times between April 12th and May 21st, and on six of these days it is marked in my notes, as “rough,” and on two others as “furious.” However, the inhabitants of Hyères pronounced my experience as “exceptional,” though from collateral evidence I am inclined to the belief that the so-called exception was in this case really the rule.

* De Valcourt, ‘Climatologie des Stations Hivernales du Midi de la France,’ 1865.

Knowing what I do as to the real state of the case with regard to the prevalence of the mistral at Hyères, I am quite unable to understand the following passage from the work of a recent writer on climate;* a passage which, without using stronger language, I can only say is grossly incorrect. It is as follows (p. 83):—"A long narrow strip of land extends along the Mediterranean from Toulon to Nice, and thence is continuous with the Riviera di Ponente. This is included between the secondary chain of the Maritime Alps and the sea, and being protected from all cold winds, and especially from the 'mistral,' is thus blessed with a climate very different from Provence in general. *Enjoying the advantages of this situation in a more than ordinary degree [is] the locality now to be described,*" namely, Hyères, about which Dr Madden goes on to speak. I have italicised the last sentence of the quotation, because I think attention should be called to a statement so at variance with fact as it contains.

I cannot see the use of misleading the public by perverting facts. If any one thinks I am making a needless fuss about the mistral at Hyères, let him hear what Professor Sigmund† of Vienna (l. c., p. 239) says about it. I will give both the original and the translation:—"Ob der Mistral (nord, nord-west) in der kalten Jahreszeit wirklich, wie angegeben wird, an 60 Tagen weht, ist nicht zuverlässig zu bestimmen; dagegen fällt er, nach allen Beobachtungen, am heftigsten langsten und häufigsten in den Monaten Februar und März ein, und nach der einhelligen

* Dr More Madden, 'The Principal Health-Resorts of Europe and Africa,' &c., 1876.

† 'Südliche klimatische Curorte,' 3rd edit. Vienna: Braumüller, 1875.

Erklärung aller Curgäste, welche die verschiedenen Curorte der Riviera kennen, in Hyères gewaltiger und durchdringender, als an allen diesen." "We cannot determine accurately whether Denis's statement that the mistral (north or north-west wind) blows on sixty days during the cold season is strictly correct; but at any rate, all observers agree that it blows with the greatest severity, for the longest periods and most frequently, in the months of February and March, and it is the unanimous opinion of all visitors who are acquainted with the different health resorts of the Riviera, that it occurs at Hyères with greater violence and penetrating powers than at any of the others."

To return to the mistral itself, I may say, before dismissing the subject, that I by no means desire to utterly condemn it as a downright bad and injurious wind, as some persons do. When it blows with moderate force it is not extremely unpleasant, especially if the sun is hot, and the chief inconvenience it causes arises from the dust it raises along the streets and roads. In parts free from dust a moderate mistral is *per se* not nearly so obnoxious as an east wind of even less severity, and even if it confines invalids to the house for a day or two, they have the advantage of fine bright weather to cheer them in their confinement.

As to easterly winds, they are not unknown, unfortunately, at Hyères, especially in winter and spring. According to Ajello ('Hyères, son Climat, &c.,' 1874), the statistics of twenty years give sixty-five days of east, twenty of north-east, and twenty of south-east wind per annum. I can myself testify to the occurrence of fresh easterly winds at Hyères.

As elsewhere, the south-east wind is liable to be followed by rain.

Taking the winds from all points of the compass, Dr Battaille's statistics, already cited, show that the prevailing currents are—in autumn from the north-east, south-west, and north-west; in winter, from the north-west, north, south-east, and east; and in spring, from the south-east, south-west, and north-west, in their order of frequency.

One great advantage of the position of the town of Hyères, especially in certain cases, is its distance from the sea (three miles), for the sea-breeze which blows along the Mediterranean coast from 10 a.m. to 3 or 4 p.m. on sunny days is scarcely at all felt so far inland, and in any case its force is much broken by the Îles d'Hyères, which form a kind of wall to the south of the town. These islands are really loftier than they appear at a distance, and the strip of sea enclosed between them and the land contributes very little in itself to the formation of the sea-breeze, which flows in from the open sea.

Dr Griffith, who has resided at Hyères for the last twenty years, informs me that the cases of phthisis to which the climate is peculiarly adapted are those of an acute florid type with high fever. Invalids of a nervous temperament, and for whom the neighbourhood of the sea at Mentone or Cannes is found to be too exciting, also get on better at Hyères, and sleep better, whereas lymphatic persons find that the climate of the former places suits them best. Patients with a tendency to hæmoptysis are also said to do better at Hyères, and no doubt rheumatic cases might be sent there with advantage.

Sigmund, however (l. c., p. 243), after previously

(p. 240) pointing out that the main character of the climate of Hyères is its great variability, declares that "no educated medical man will now send real pulmonary patients to Hyères, even though they suffer merely from simple chronic bronchial catarrh." He considers that the climate may be recommended in cases of scrofula, especially of the torpid (?) varieties, and in young people, as well as for anæmic cases generally, provided they are free from heart or lung disease, and for convalescents from acute diseases who require prolonged exercise in the open air, and can stand sudden changes of temperature. He warns persons with gout, rheumatism, and a malarious taint, from visiting Hyères. I am not sure that on this last point his advice is sound.

I must now say a little about the town itself, and the general characters of the district. Hyères is entered on the west side by a single, rather straggling street, about a quarter of a mile long, which is called the Boulevard National, and which skirts the base of the Château Hill, running at first from north-west to south-east, and afterwards nearly due east, when it merges in the town itself. Two of the best hotels, and several *maisons meublées*, are situated in the Boulevard National—an unfortunate selection of site, as this part of the town is the most swept by the mistral. Some of the houses on the north side of the street are considerably raised on a kind of terrace above the carriage-road, so that their view is but little affected by the houses opposite. The course of the Boulevard National through the town of Hyères, where it gradually assumes the character of a high street, and is termed the Route Nationale, is broken at two points by open spaces or

squares—the first, the Place des Palmiers (so designated from the seven very fine palms which form its chief attraction), being the smaller; and the second, the Place de la Rade, or market square, with the oblong Place Royale opening out of it on the north, the larger. Several roads enter the main street from the south, and two of these enclose between them the very picturesque Boulevard des Palmiers, which runs parallel to the high street, with its centre nearly opposite the Place de la Rade, and is planted with two rows of date-palms, upwards of sixty in number, which, after a few more years of growth, will give the street a decidedly Eastern character.

The north-east corner of the Place de la Rade is connected by a short street with the new Boulevard d'Orient, which is north of, and nearly parallel with, the Route Nationale. The villas which have been, or are still being, erected on either side of it, are efficiently sheltered from the north by the ridge of the Maurettes, underneath which they lie, and they are also, to a great extent, out of the line of the mistral. They have a south or south-west aspect and nice gardens, and enjoy an excellent view over the plain and roadstead. Below this Boulevard the Route Nationale, which is bordered by villas on its north side, runs for about two miles eastward towards the valley of Gapeau already mentioned, but it is a very dusty road, and traverses a shallow, draughty cutting bordered by vines and olives, and hence is not a very good promenade for invalids. The old part of the town of Hyères clusters round the Place de la Rade, especially its western side, and most of the narrow streets are built on the ascent, and are only available for foot-passengers.

The town as a whole is not kept as clean as it might be. The streets want better paving and draining; in fact, in the old town there appear to be no drains, but the slops and refuse from the houses are allowed to accumulate and run down open gutters in the centre of the streets. This is especially true of the Rues St. Bernard, de la Croix, and Fenouillet. Some of the back lanes above the cemetery were horribly filthy when I visited Hyères in 1877, and a gentleman who spent some weeks there this spring (1879), and who has read what I then wrote about the state of the old town, tells me that there has been no improvement in the last two years. The best shops are in the Rue Massillon, leading to the Place Massillon, and along the Route Nationale and in the Place de la Rade. There is a general poverty-stricken look about the shops taken as a whole, and they are very inferior to those of Cannes or Nice. The Hôtel de Ville, or town hall, is situated in the little Square Massillon, which is adorned by a bust of the celebrated preacher who was born in one of the houses close by; and a curious old tower which belonged to a templar church on the same spot is now the official residence of the Commissaire de Police.

The accommodation for visitors at Hyères appears to be at present sufficient for their demands, and there is less building going on than at most of the other winter stations of the Riviera. I have already mentioned the villas on the Boulevard d'Orient, some of which, however, are occupied by permanent residents; and other villas are to be met with south and south-west of the Place des Palmiers, and also on the Boulevard National. *Maisons*

meublées or furnished apartments are most abundant in the Boulevard National, the western portion of the Route Nationale, near the post-office and the Bureau Télégraphique, and the western corner of the Place des Palmiers. There are several hotels on entering the town from the west; the Hesperides, and Hôtel des Îles d'Or—the former with a western, and the latter with a south-western aspect, overlooking the Montagnes des Oiseaux—are both good. Their great drawback is their situation in the Boulevard National, which exposes them to the full force of the mistral. The Îles d'Or is the largest and best hotel, all things considered, in Hyères, and is kept in excellent style, and with a good table and attendance. Its rooms are, however, small, the lower ones narrow, and the upper ones narrow and low. This state of things is accounted for (?) by its having originally been built as a hospital, though our modern notions would scarcely admit the excuse as valid.

There is a wing, or *dépendance*, at either end. The passages are long and tortuous, and hence draughty, although provided with doors—which no one shuts—to isolate the different parts of the house. Complaints have been made in former seasons that imaginary extras were too apt to be inserted in the visitor's bills, and I have heard of "cork money" being charged for brandy bought privately and used as a medicine upstairs, and of other persons finding the expense of the *calorifère*, or heating apparatus, put down in their bills. This sort of hotel management deserves the strongest reprobation, and I allude to it in the interests of the public, though I trust it is now a thing of the past. The Îles d'Or has excellent gardens, not only behind it on the

flank of the Château Hill, but also on the south side of the Boulevard National.

The Hôtel des Ambassadeurs, in the town itself, is perhaps the best situated of all the hotels, and is better adapted for persons of moderate means than the two former. Its aspect is due south, and the windows command a very extensive view. The rooms are excellent, and the attention of Madame Suzanne, the landlady, to her guests deserves the highest commendation. In the Boulevard des Palmiers the Hôtel du Parc is well spoken of. It has the disadvantage of an open street running down at right angles to it at the back. A friend who was there last winter (1878-9) reported that he was very well fed and lodged for nine francs a day, but that the closets were in an unsatisfactory state. The Hôtel d'Orient, near the entrance of the Boulevard d'Orient, has a south aspect, but no garden. The Hôtel de l'Europe, in the town near the Hôtel des Ambassadeurs, completes the list.

Prices are perhaps a little lower at Hyères than at Cannes or Mentone, but the difference is not great. The average *pension* would be 12 to 14 francs. Some of the hotels give wine at the *table d'hôte*. Provisions (meat and poultry) are abundant, and vegetables are grown in large quantities in the market gardens which lie to the south and west of the town. The latter, which are generally enclosed with high stone walls, replace the orange groves which, eighteen years ago, as I learn from Dr Griffith, covered a large portion of the plain.

It does not appear, however, that the disappearance of the orange groves is due to the effects of the climate. It may partly have depended on the ravages

of the blight or *Coccus hesperidum*, but according to de Valcourt, the competition of the orange trade from Blidah, in Algeria, has made the culture of these trees unprofitable at Hyères. At any rate, orange trees are now scarcely to be met with, except in a few gardens, while the peach, the plum, the strawberry, and the artichoke have taken their place. Acres and acres of the small "hautboy" strawberry are grown at Hyères, and supply the Paris market with the earliest pottles, and their cultivation and gathering give employment to a large number of the labouring women. The gardens are in several places protected from the high winds, especially at the entrance of the valley of Hyères, by dense hedges of tall cypresses, which, with their intense dark green foliage, lend a peculiar character to the landscape. Wheat, olives, and vines are largely cultivated round Hyères, on the hill-sides of the Maurettes, and elsewhere ; and near the Gapeau river, where elm trees line the road-side, and also nearer the sea, there are large fields of mowing-grass. The Maurettes are covered on both sides with the picturesque forests of the *chêne-liège*, or cork oak, a tree which does not reach maturity until the age of fifteen years, and which will only bear removal of its bark every seven years. The Montagnes des Oiseaux are clad with pines.

The geology of Hyères is in some respects peculiar. The Château Hill consists of mica-schist and clay-slate with quartz, the higher parts of the Montagnes des Oiseaux of limestone, and the southern spur, on which the votive church of the Ermitage stands, of old red sandstone, and the latter formation extends over part of the plain of Hyères. Near the

town the soil is a product of the disintegration of the clay-slate. It is very fertile under proper management, but, in consequence of the dryness of the climate, requires constant watering by artificial means. Of late years the rainfall has been very scanty, and the inhabitants say that many of the storms seem to avoid Hyères, and to discharge themselves further inland. Possibly this may be due to the high temperature of the air arising from the heated plain, and to the absence of high peaks in the immediate neighbourhood.

I have no recent statistics as to rainfall at Hyères, but in the table below I have placed the figures for the neighbouring town of Toulon from January 1877, to May 1879, which represent two dry seasons and a specially wet one. These figures are at any rate approximately true also for Hyères.

The old observations of Beaurégard from 1824—49 assigned an average rainfall of 482 millimetres or 19·20 inches to the months from October to February inclusive, and of 746 mm., or just thirty inches for the whole year. Dr Battaille gave the average number of rainy days (including those on which even a shower fell) for the winter season during the years 1816—29 as follows :

Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.
8 ...	8·5 ...	7 ...	5·5 ...	4·8 ...	4·9 ...	6·6 ...	4·7

For the whole year he reckoned 62·4 days on which rain falls. This should be noted, because several writers, and among them More Madden (l. c. p. 84), declare that there are only *forty* rainy days annually at Hyères, the fact being, as shewn above, that there are 37·3 such days on the average from November to April alone.

Table of Rainfall at Toulon 1877—1872 from the daily reports of British meteorological office.

Year.	Jan.	Feb.	Mar.	Apr.	May.	Oct.	Nov.	Dec.	Total.	
1877...	1·98	0·16	1·31	2·10	1·71	2·45	1·29	0·55	11·55	Rainfall in inches.
—	3	1	5	10	7	5	7	4	42	Rainy days.
1878...	0·99	0·24	0·83	1·94	2·61	1·78	6·55	3·24	18·18	Rainfall.
—	2	3	3	6	8	8	16	14	60	Rainy days.
1879...	2·64	0·94	1·65	3·21	4·86	...	...	...	...	Rainfall.
—	7	5	3	11	11	...	...	...	...	Rainy days.

Before leaving the subject of climate, I may say that fogs are not very rare, especially over the islands and the plain, in autumn and spring. Such fogs occurred more than once when I was staying at Hyères in 1877. The mean relative humidity is given as 58°, with a range from 20° to 80°, but good dry and wet bulb observations are still wanted, the old statistics not having been founded on experiments with trustworthy instruments.

Hyères is fortunate in having a good and abundant water-supply, part of which comes from the limestone hills to the west, and part from a spring near the Gapeau, which is pumped up by a steam-engine. The plain is also watered by means of a canal more than ten miles long, which comes from the hills on the north of Hyères, and which the various proprietors enjoy in rotation. It also supplies the public wash-house and the ponds of the Jardin d'Acclimatation, an ornamental park, with tropical and Australian plants and trees, and a few extra-European birds and

animals, a quarter of an hour's walk south-east of the town—a very agreeable promenade on calm days.

The sanitary condition of Hyères is, on the whole, satisfactory. I have already mentioned one or two points which are capable of improvement. Persons taking villas should see carefully to the drains. Typhoid fever is not, as far as I could learn, at all of frequent occurrence, but, in May, 1877, two deaths from it took place among the visitors, and there were two other cases which recovered; a mild case was also admitted into the hospital. It seemed clear that one of the deaths arose from water contamination, as the well lay between two open drains. The open drains at the sides of several of the principal roads, *e.g.* that to the station and that to the Ermitage, are sometimes extremely offensive, and although they are flushed from time to time, this measure is quite inadequate to clear them of what certainly is nothing less than stagnant sewage.

The inhabitants of Hyères are, as I am informed by Dr Vidal, the very courteous and skilful director of the hospital, as a rule, very healthy. There is no scrofula among the children, and phthisis is rare. In May, 1877, I saw but one case admitted from a distance in the wards of the hospital, whose scanty complement of patients revealed the small amount of pressing sickness among the poorer classes of the neighbourhood. At the cemetery the large number of old people buried there attracted my attention. Within a few yards of one another I noticed ages of ninety, eighty-seven, seventy-five, seventy-four, all dying in the same year, and the sexton told me that the day before they had buried a man of ninety-three, but he added—"The present generation does not

promise to be so long-lived as the last, and drunkenness especially cuts off the men." The last two proprietors of the Château Hill may be mentioned as instances of considerable longevity, one having reached eighty-eight, and the other eighty-two years. The Deputy Mayor, M. Suzanne, kindly furnished me in 1877 with an extract from the register for 1876, which showed that there were 303 deaths, 206 births, and 70 marriages, the great excess of deaths over births being explained by the deaths of foreign invalids, and of sailors and others connected with the French fleet in the roadstead, being included in the estimate.

A notice of Hyères would be incomplete without some allusion to the valley of Costabelle, which lies to the south-west of the Ermitage spur of the Montagnes des Oiseaux, which latter protect it with their fir-clad slopes from the north and north-west winds. The valley is embosomed in pine woods, broken here and there by vineyards and olive orchards, and by the gardens of the few villas which have sprung up there as yet. Near the shore there are large groves of olive trees, which are finer than at Hyères itself, and indicate a warmer climate. There is a fair carriage-road through the woods, which reaches the shore about a mile from the Hyères end of the valley, and joins the coast-road to the village of Ceinturon further west. Among the pine woods at some distance from the sea the Duke of Grafton has built a splendid house. The valley of Costabelle is undoubtedly warmer and more sheltered than Hyères itself, and the north-east corner is almost entirely protected from all but southerly winds. Its western portion is rather exposed to easterly winds, owing to

the ridge of the Ermitage not extending within half a mile of the shore. With the exception of two or three villas, the only accommodation for visitors in the valley of Costabelle is the Pension Anglaise—a small and very sheltered unpretentious house, which nestles among the pine trees almost immediately below the Ermitage ridge, and is capable of containing about twenty-two persons. It would be almost sure to succeed if enlarged and properly managed. A better hotel is needed at Costabelle, the *salon* and *salle à manger* of the present pension being small, low, and stuffy, though the bed rooms are tolerably good, but not lofty.

The walks in the valley of Costabelle and on the neighbouring hills are numerous and picturesque, and, even with a strong mistral blowing, there are few days when an invalid cannot get a sheltered walk there. I should add that Costabelle is about two miles south-west of Hyères.

The railway, which was until lately nearly an hour's drive from the town, has now been brought within about a mile of it, and there is communication by the same means with the sea shore. Passengers change carriages at Toulon if coming from Marseilles, or at La Pauline if from the direction of Cannes. No doubt, Hyères will now be visited more frequently by passing travellers than in former years, and it is not unlikely that winter residents will also increase, though probably not in the same proportion as at the more eastern health resorts, such as Cannes and Mentone. At present there is an average of 300 English visitors each winter, and there are four or five permanent English residents. There is an English church, library, and reading-room, and the

English are favorably regarded by the inhabitants. Visitors of other nationalities—the French, of course, excepted—are but feebly represented.

April and May are, with the exception of occasional windy days, extremely pleasant at Hyères, and hence it is a good resting-place on the home journey for invalids who have wintered further east. The botany of the neighbourhood is interesting, and in some respects peculiar; and not only at Hyères, but elsewhere along the coast, those persons who hurry northward with the arrival of April miss one of the most beautiful aspects of the sunny south.

CHAPTER VI.

THE HEALTH RESORTS OF THE FRENCH RIVIERA.

NO. II.—CANNES.

No southern health resort has, I think, such a vogue among English people as Cannes; and comparing its present size with that which it had only four or five years ago, and looking also at the amount of building still in progress, it seems as if it were not likely soon to lose the favour it now enjoys. Cannes, like Nice, Mentone, and San Remo, skirts the seashore, and faces nearly due south. Somewhat like Mentone, it occupies two bays—the smaller one to the east being fringed with houses nearly from end to end; and the larger to the west, only for a mile or two. The two bays are divided by a jutting hill, the Mont Chevalier, on which stand a ruined old tower and the old church or cathedral of Cannes—two prominent and characteristic objects from many parts of the country. The shore along the eastern bay is rather flat, and slopes very gradually back from the sea; on the other hand, the inhabited part of the west bay rises in rather a steep slope to a height of a few hundred feet, and is occupied chiefly by villas with large gardens, and by three or four hotels. A sheltered public garden—the Square Brougham, so named in honour of Lord Brougham who settled at Cannes in 1834—is situated here.

The main town of Cannes (the commercial part) lies directly to the east of the hill dividing the two bays. Close under the lowest spur of the hill is the harbour, not one of very great pretensions, or available for vessels of large tonnage, but well sheltered from the north-west, with quays and piers of solid masonry, and generally enlivened by the presence of a few coasting vessels. It was constructed in 1838. The town itself consists of one straight main street running from west to east—the Rue d'Antibes,—with some minor streets parallel to and at right angles to it. The south side of the main street nearest the harbour is open, and there is a wide space—the Cours—partly planted with plane trees, and laid out with seats, fountains, &c. Here the market is held, and the picturesque dresses—more especially the head-dresses—of the country-people render it worthy of a visit from the traveller.

A very pretty little public garden which existed on this spot up to two years ago has been ruthlessly destroyed for the sake of a theatre, which is now at a standstill owing to some fault of the contractor, and may possibly never be finished. In any case, a worse position for it could not have been selected. To the east of the theatre, almost close to the high street, a white marble statue of Lord Brougham was erected in December, 1878, and inaugurated with great ceremony at the Brougham Centenary festival in May of the present year. The figure of the statesman, to whom as a private individual Cannes owes so much, is represented in a rather fantastic suit of robes, and many people consider that the face bears but a remote resemblance to the illustrious deceased. A similar remark may be made about a

bust of him in the garden of the Square Brougham. The whole length of the eastern bay is skirted by a broad and well-kept carriage-road, with footpaths or pavements on either side, which are separated from the narrow beach by a low hedge. The bay is bounded on the east by the Cape, or Point, de la Croisette about a mile and a half from the Cours. The road which leads to it, the Boulevard de la Croisette, is fringed on the side away from the sea with handsome villas and gardens throughout nearly its whole length. Among other buildings the Cercle Nautique or headquarters of the Yacht Club, with its profusion of flagstaffs will attract the visitor's attention. From the Croisette itself there is a magnificent view over old Cannes, and the lovely blue range of the Esterels to the west, and on a clear day the background to the north is filled up with the soft dove colour of the distant limestone hills at the back of Grasse. The Cape Croisette separates the Golfe de la Napoule in which Cannes lies from the Golfe Juan, an indentation of no great depth which is bounded on the east by the Cap d'Antibes, at the base of which lies the garrison town and seaport of the same name.

Exactly opposite the Croisette to the south at a distance of somewhat less than a mile is the island of Ste Marguerite, and beyond and behind it about half a mile farther to the S.S.W. that of St Honorat, the two islands together being known as the Îles des Lérins. They can be easily visited by the aid of a little steamer which goes over from the harbour at Cannes twice a day. Their chief attractions, beside the beauty of the islands themselves and of the views obtained from them, are the Monastery of the Lérins

on St Honorat, and the fort of St Marguerite, a prominent object even from Cannes, on the island of that name. For a full description of the islands, and of the best way to see them properly, I cannot do better than refer those interested to the excellent little Guide to Cannes by F. M. S., published in 1878 by Stanford. F. M. S. is a gentleman who has spent several years at Cannes, and knows it and the surrounding country intimately. I am not at liberty to disclose his real name, which, however, is no mystery to residents at Cannes, but I can confidently recommend his book once for all as the best possible guide to the environs of Cannes.

Returning to Cannes itself, the carriage-road to the west of the town is at some distance from the sea, and for the first half mile beyond the harbour is by no means picturesque. Further westward it runs between villas and gardens, and is overshadowed by trees; and still further it descends into the broad plain of Laval which reaches to the Esterels. Looking at Cannes, however, from a medical point of view, what interests us is less its picturesque than its sanitary aspect; and a question suggests itself—"How is the town and neighbourhood sheltered from winds?" To this the answer is, "Very insufficiently."

The eastern boundary of the district is a range of fir-capped hills, the highest points of which attain a height of 631 and 864 feet.

About two miles north of Cannes these hills bend round, and then run in a westerly direction till they join another range which turns south and divides the west and east bays. These latter hills are not 500 feet high at their highest point. Behind

the east bay the near hills are lower, and further off the shore than behind the west ; but far in the background, at a distance of eight or ten miles, there is a mountain range which efficiently protects the town from the north wind, except at one or two points where it is broken by valleys.

The shelter which Cannes enjoys on the north is very different from that of Mentone (see Chapter VIII) ; at the latter the mountains are close, at the former many miles away. Still, there are parts of Cannes, especially those in the west bay, which lie sufficiently under cover of the near hills to be quite protected from northerly winds.

Like Hyères the wind which Cannes is most exposed to is the north-west wind, or mistral, which finds its way through a gap between the northern mountains and the western range of the Tanneron, and sweeps over the district at times with great violence. This wind, which makes itself felt still more severely further westward, and which is still more the bane of Hyères than of Cannes, is difficult to escape from except by keeping completely indoors. Even places which the wind itself does not touch are affected by the currents caused by its in-draught. The mistral is a very dry and sometimes a cold wind. It may blow fiercely while the sky is perfectly clear and bright. It raises clouds of dust, and whirls them high in the air, and its duration is somewhat indefinite. Generally it blows for two or three days at a time, but it may last for five days or longer, falling at sundown, and rising again at about 10 a.m.

According to Dr de Valcourt ('Climatologie des Villes d'Hiver &c.'), the mistral at Cannes rarely lasts more than twenty-four hours, but Dr Marcet

(‘The Weather at Cannes during the Season 1875—1876’) says, in February, 1876, it blew “uninterruptedly from the 4th till the 9th,” and in November, 1875, it also blew “three full days.” But Dr de Valcourt, I find, does not recognise the north-west as a mistral, as Dr Marcet and most authorities do. Both in his work above referred to, as well as in another entitled ‘Sketch of Cannes and its climate,’ 1873 (p. 60), he speaks of west-north-west being the direction, or “the habitual direction” of the mistral. Hence with him the mistral proper must be a rarity, for in his meteorological tables for the season 1878—1879, published in the ‘Indicateur de Cannes,’ and which lie before me, I find the west-north-west only occurring on *two* days of the whole winter (October 23rd, December 16th).

This objection to recognising the north-west wind, however, is so powerful in Dr de Valcourt’s mind that he does not always mark the wind in his tables as coming from this direction when it really does, and in this way, I fear, gives a misleading impression. Thus, I happened to have noticed last February (1879) at Mentone that the mistral blew hard, with occasional intervals of calm, from the 17th to the 23rd inclusive, that is to say, for just seven days, and it impressed me as the longest period of mistral I had ever remembered at Mentone. In comparing Dr de Valcourt’s tables with my own, I was surprised to find no similar period of north-west wind at Cannes during February, because I know that if we have a strong mistral at Mentone they are sure to get it at Cannes, which is farther west and more exposed. I have since been able to examine the official Toulon weather report for the above date, and there I find

my Mentone observation fully confirmed. The table below shows this.

February, 1879.

Date.	17th.	18th.	19th.	20th.	21st.	22nd.	23rd.
Toulon. Force 1-10	N.W.W. 5-7	N.W.-W.N.W. 6-8	N.W. 5-7	N.W.-W. 4-6	N.W. 6-8	W.-S.W. 7	N.W. 3-9
Cannes. Force 1-5	W. 3	W. 4	W. 3	S.W. 4	W. 3	S.W. 2	W. 3
Mentone. Force 1-10	N.W.-W. 6-7 all night and day	N.W. 6-8 all night and day	N.W. 4-6 moderate to 11 a.m., after- wards rough at times	N.W. 2-6 night and morning strong at times, in gusts in afternoon	N.W. 7-0 all night and until 2 p.m., quite calm 5 p.m.	N.W.? 4 fresh mistral only from 9 a.m.— 3 p.m.	N.W. 4? fresh dur- ing day until sunset

It seems to me that if the wind was north-westerly at Toulon and Mentone on the same day it must have been so also at Cannes, which is an intermediate station. Why, then, mark a wind as west, or south-west, when it is really north-west?

Of the other winds which touch Cannes, the north-east, east, and south-east are the most common. The north-east is chiefly felt in what may be called the valley of le Cannet and the east bay of Cannes. I noticed this very much while staying at Cannes for a few days this year in May. On the east side the wind blew fresh, while on driving into the west bay, beyond the old town, the atmosphere became comparatively calm. On the other hand, the west bay catches the mistral most. The east and south-east winds are most felt near the shore and in the

town. Dr de Valcourt gives the east as the prevailing wind at Cannes. Both the east and north-east winds are cold, and often bring rain, but, as elsewhere on the Riviera, the heaviest rain comes from the south-east.

After the easterly currents, the westerly are the most common in winter. "The west is a dry wind and brings fine weather. The south-west is accompanied with clouds, and may or may not bring rain" (de Valcourt). Storms often come from the south-west.

All things considered, I think there is little doubt that Cannes is a very windy place, especially in spring, and I have had several opportunities of judging of it personally at that season.

In seven weeks during which I stayed there in April and May, 1876, I noted strong winds at different times from nearly every point of the compass, with a prevalence of easterly and north-westerly currents, and I made a similar observation this year also. Even the sea-breeze which blows in the middle of the day on sunny days is somewhat rough; but this is true of it all along the coast.

For the sake of brevity I have condensed the information which I have been able to obtain as to the other meteorological elements of the climate of Cannes into the subjoined table. The chief authorities on this subject are Dr de Valcourt and Dr Marcet in their published works already referred to.

Meteorological Table of monthly means for Cannes.

Authority and no. of years.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	Total.
Mean temperature—							
Taylor, 1861-64	56·4	49·8	47·4	49·8	56·0*	63·0*	
Valcourt, 1865-68 ...	54·0	48·5	48·0	50·0	51·8	56·8	
Marcet, 1874-77	53·6	48·2	50·23	48·5	50·7	55·7	
Mean temperature at 9 a.m., Marcet, 3 years...	53·46	47·66	48·8	47·3	51·5	57·33	
Mean maxima, Marcet, 3 years	60·06	54·3	55·76	54·26	57·23	61·8	
Mean minima, Marcet, 2 years	46·9	39·7	44·5	41·0	44·6	49·2	
Mean minima on grass, Marcet, 1876-77	40·7	40·7	38·2	35·0	35·8	42·0	
Lowest minima on grass, ditto	25·5	27·0	26·0	23·7	17·5	32·0	
Lowest minima in box, Marcet, 1874-75† ...	39·2	29·8	33·4	31·4	37·4	42·8	
Relative humidity—							
Valcourt, 1865-68 ...	59·0	63·0	69·0	63·0	57·0	62·0	
Marcet, 1874-77	70·64	69·99	60·99	70·6	70·73	74·16	
Rainfall, 7 years, Valcourt, 1865-73; Marcet, 1876-77	inches. 4·59	5·70	2·87	1·54	4·34	2·76	21·80
Highest fall in each month	10·12	12·94	6·36	4·25	8·38	6·56	
Lowest fall in each month	0·27	2·0	0·89	0·04	1·25	0·25	
Rainy days, Valcourt, 6 years; Marcet, 2 years	8·35	12·03	11·88	5·91	12·2	8·0	58·37
Overcast (no sun or rain), Marcet, 1874-77	3·0	4·33	4·3	2·66	3·3	1·3	16·89
Fine (almost cloudless), Marcet, 1874-77	19·0	17·6	19·0	21·3	18·6	17·3	112·8

The above table does not require much comment, but there are one or two points which should not be passed over. It will be noticed that I have given *three* authorities for the mean daily temperature, instead of taking the mean of all their observations.

* Probably too high.

† Perhaps 1° F. too high.

The reason for this is that the same system was not adopted for registering the temperatures in each case.

Mr Taylor's means are calculated from observations at 8 a.m., 3 p.m., and 6 p.m., and are probably too high for November and December, and certainly for March and April.

Dr. de Valcourt's figures are probably all too high, owing to the arrangement of his instruments. They are placed in a kind of Stevenson's screen about thirty yards from the sea, near the Cours (see above) and only a few feet above sea level. My objection to the box moreover, is founded on its construction, which, I think, is faulty. The box has a closed unlouvred and unventilated roof, the south-east and west sides are louvred, but the spaces between the bars are too narrow. The back is not louvred, but has a door of wire net. The inside of the box, looked into from behind, is quite dark. The outside is painted not white, but green, and the front gets the full sun. When I add that radiation is interfered with by the branches of a tree overhead, I shall have given my meteorological readers all the information necessary for them to form their own opinion of Dr de Valcourt's thermometer stand.

Dr Marcet's system leaves nothing to be desired, as far as the arrangement of his instruments goes. His observations have hitherto been taken in the west bay at Cannes, about seventy-five yards from the sea, and thirty feet above it, the house and garden being sheltered on the north side in some measure by a hill, the foot of which is only separated from the house by the high road. The minimum thermometers have been placed in a well-constructed Stevenson's screen on the lawn in front of the house, and the

maximum and wet and dry bulbs under a deal screen "made fast to the railing of a balcony on the first floor, to the north of the house." The garden is much exposed to the mistral. I may say that Dr Marcet kindly allowed me to see the arrangement of his instruments this spring. Owing to the nearness of the house to the sea, and the closeness of the hill, even his readings scarcely give a correct idea of the general temperature of Cannes, and Dr Marcet tells me that some observations made last winter at the Alsace-Lorraine Hotel to the left of the Boulevard du Cannet (see below), looking north, and nearly half a mile from the sea, gave readings on the average 1.5° Fahr. lower than at his house. This is the only remark I have to make on Dr Marcet's statistics, which are the most accurate and valuable we at present possess for Cannes. As a fact in 'The Weather at Cannes, &c,' pp. 27, 28, Dr Marcet has anticipated my objection. With regard to the great discrepancy between the mean relative humidity as given by de Valcourt and Marcet, I can only suspect some error in the former's method of observations, as the years to which his figures refer were not particularly dry ones.

The rainfall table contains all the means that have been published for recent years. I have not, however, included the amount of rain registered during the winter of 1878—1879, which will be found in Appendix I at the end of the volume. Dr de Valcourt gives no return for November and December, 1878, for the whole of 1869, or for January and April, 1870.

The order in which the months can be arranged according to the quantity of rain which falls in each corresponds to that given in the general meteorologi-

cal chapter. It is not known as yet exactly how much rain falls annually on the average of a number of years, or how many rainy days may be expected annually. A former observer (Sève) gave twenty-seven inches on fifty-two days, as the average of six years' observations. Reimer says, without stating his authority (*l. c.*, p. 175), there are thirty-two inches of rain per annum at Cannes, and, considering how much often falls in October, I should think this quantity will probably be nearer the mark in the long run. Dr de Valcourt ('Sketch of Cannes,' &c., p. 63) says he believes the average number of rainy days per annum is about seventy. Judging from the combined statistics of de Valcourt and Marcet in the meteorological table given above, it seems pretty clear that Sève's estimate of fifty-two rainy days for the whole year must be wrong, for the mean number of days on which rain enough to be measured fell in the six months' period from November to April, during eight years was 58·37, or 6·37 days more than Sève gives for the whole year. I lay stress on these little points, because for want of some such criticism incorrect statements are handed on from one writer to another, and the public is thus perpetually misled.

There is but little special to add about the climate of Cannes. Mists occasionally occur in the plain of Laval and over the Îles des Lérins, but they are unimportant. Hoarfrost is frequently seen in some winters at a distance from the sea.

Geologically, Cannes is not uninteresting. The eastern hills, bounding the valley of Le Cannet, are formed of a compact limestone, as is also part of the point of Cap Croisette, though primary rocks—gneiss

and granite—are found there also. The hills along the shore from the Croisette towards Antibes are gneiss, and the same rock occurs as an outcrop at certain parts of the limestone range bordering the east side of the plain of Laval on the road to Grasse. The plain of Laval itself is alluvial, and is watered by the River Siagne which enters the sea at Napoule under the Esterels. The Esterel Mountains are largely of primary formation—granite, gneiss, and porphyry. The secondary strata are chiefly sandstones, including the old red sandstone. Travellers by rail through the cuttings of the Esterels can easily convince themselves of the presence of porphyry. The shore at Cannes is sandy and well suited for bathing, especially towards the Cap Croisette. I am mainly indebted to Dr de Valcourt for the details of this short geological sketch.

With regard to the effects of the climate on disease generally, I have no special information. Cannes is distinctly a bracing place, too much so, in fact, sometimes, but it suits some people better for this reason than Mentone or San Remo, especially as the spring advances and the days get warm; and I think invalids who have wintered in one of these places often benefit by a change to Cannes at the end of March or in the middle of April. Although the mean temperature of Mentone and San Remo is not so very much different from that of Cannes, yet those who have lived at all these places are unanimous in admitting that the two more eastern are warmer than Cannes. Considering their more sheltered situation and the greater amount of reflected heat which they receive from the hills and mountains which protect them, it would be surprising

if such were not the case. Many persons, I know, especially healthy ones, complain in warm weather of a sort of closeness in the Mentone atmosphere, and prefer Cannes as more open and bracing; and the same is true of some invalids, who at such times feel oppressed and languid, as well as lose their appetites, at Mentone.

One certain proof of the superior mildness of Mentone and San Remo is the way the lemon tree flourishes there, being, as it is, of so delicate a nature, and killed by only a few degrees of frost. At Mentone the valleys are lined with lemon orchards, and at San Remo, though their number is being gradually diminished by the exigencies of building operations, there are still plenty of lemon trees left to testify to the climate. At Cannes lemon trees are scarcely ever seen. The olives, too, are smaller there than they are east of Nice. I cannot lay down any particular indications for the climate of Cannes. Dr de Valcourt says it "is specially suited to persons suffering from delicacy of the respiratory organs (except in those cases where fever rises high), to the scrofulous, the rheumatic, and the gouty." He recommends it also in cases of anæmia, in cases of exhaustion by overwork, in the debility of old age, and in bronchitis. These indications are not, however, special to Cannes, but are more or less applicable to all the health resorts of the Riviera.

He further advises patients with hæmoptysis, fever, or nervous irritability, to keep away from the sea, to live in a well-sheltered situation, and to avoid the town when there is a rough wind. This is sensible advice, which should be kept in mind and followed.

The sanitary state of Cannes is fair, but the

drainage is not as good as it might be, and there are constant complaints of bad smells along the Promenade by the sea from open drains discharging themselves on to the beach. There were a few cases of typhoid fever about last winter, and I understand some of the villas were not exempt from the disease. While, however, the French law allows a person to let his drains discharge on to his neighbour's land, we must not be surprised at the occasional occurrence of this affection. Acute specific diseases, especially scarlet fever and smallpox, are met with sporadically, but so seldom as to be of no practical importance.

In one respect Cannes is well provided for; the water supply is excellent, and the water itself, though occasionally turbid after rain, is of good quality. There is plenty of water to keep the water-closets well flushed, and there seems to be proper provision made for supplying the laundries, so that much of the washing, which at Mentone has unfortunately to be done in the torrent-beds and watercourses, especially in dry seasons, is kept out of sight.

The water is brought by a canal, thirty-one miles long, from the River Siagne, some way to the north-west of Grasse, and it is carried through the pine-woods along the western slope of the hills which border the vale of Le Cannet, to a reservoir near the Hôtel Californie, almost the highest inhabited point of the east bay. The same canal supplies Vallauris, Golfe Juan, and Antibes, and thanks to it the culture of the orange on the hills near the Vallauris railway station is attaining great dimensions.

One great drawback, especially to carriage-drives, at Cannes is the dust, which is very annoying if there is any wind, especially close to the town.

Most of the roads are laid with limestone, and as they are seldom scraped after rain, and rapidly become dry, the powder formed by the grinding of the carriages lies on the surface in a thick layer, which, owing to its want of cohesion and its lightness, is raised by a very slight breeze. Where many carriages are passing one another the clouds of dust are a serious annoyance to the eyes and mouth. To foot-passengers, the mud which this perennial dust amalgamates into immediately after rain is also a considerable nuisance. The state of the roads and causeways in and close to Cannes is certainly one which does not redound to the credit of the authorities. The Route de Grasse, for example, is intolerable from the dust, and the Boulevard du Cannet is only supplied with causeways in a patchwork manner, though so many of the principal hotels are situated within a short distance of it.

Dr de Valcourt* declares that "the principal roads are paved with porphyry from the Esterels." This may be true of some of the roads on the west, but it does not apply to the Boulevard du Cannet, the Route de Grasse, or to a number of the offshoots of the Rue d'Antibes. Porphyry is so easily attainable for "metalling" the roads in and about Cannes that the use of limestone for this purpose is, as a friend wrote me only the other day, "scandalously unnecessary."

The general aspect of the country about Cannes is very lovely, especially in spring. There is very little ploughed or fallow land. Olive trees alternate with vines, and between each row of the vines in certain parts wheat or beans are grown in strips about six

* 'Sketch of Cannes,' &c., p. 49.

feet broad. The country being more level, the steep terraces which have to be constructed at Mentone with such labour to carry the olives and the orange and lemon orchards, are scarcely met with at Cannes. The hills are verdant to the tops with pines and forest trees, and the warm and sheltered nooks are planted with the orange tree, which is here almost exclusively grown for its blossoms—used for making perfumes. Nearly every kind of shrub and flower grows luxuriantly out of doors in the gardens; and the Cannes gardens are unrivalled in their way. In the end of March, after an average winter, you will find roses in full bloom; in the second week of April, cinerarias, petunias, verbenas, to say nothing of pansies, various kinds of wall-flowers, and stocks, in perfection in open beds, and as little protected as geraniums would be in England when the frosts are gone in the middle of June.

No doubt the art of gardening has, under English influence, been carried further than elsewhere on the Riviera, but, apart from this and from the climate, the soil is especially favorable to all kinds of vegetation. The primary geological formation, chiefly gneiss, in the neighbourhood of the town has, undoubtedly, a large share in producing the luxuriance of its gardens. As F. M. S. says (l. c., p. 9), the gneiss “containing, as it does here, an unusually large proportion of felspar and mica, rapidly disintegrates on exposure to atmospheric influences, and becomes a soil light, dry, and fertile.”

Owing to this natural advantage the district round Cannes is largely utilised for growing various scented flowers for the use of perfumers and confectioners. The cultivation of the *Cassia farnesiana*, whose

flowers fetch from two francs to five francs a kilogramme, is almost limited to this region, owing to its need of a granitic soil. For this reason it is especially grown in the Californie district on the east side of Cannes (de Valcourt). I have, in the chapter devoted to the vegetation of the Riviera, already spoken of the importance of the orange-flower trade at Cannes, but I may mention that, according to a recent writer, a single distiller at Grasse, the great centre of the scent trade, about ten miles north of Cannes, uses 80,000 kilogrammes of these flowers yearly.

Roses also are grown in the plain of Laval and on the Route de Grasse by acres, and, according to F. M. S., the otto of roses distilled from them is twice as valuable as that which comes from the East. I know, at any rate, that the odour of a rose field in full bloom is delicious.

In respect of accommodation for visitors and invalids, Cannes is nearly on a par with Nice, and far beyond Mentone and San Remo, but the accommodation provided is still insufficient for the needs of those who flock there, and new villas are being constantly built as well as new hotels, and old hotels are being added to and enlarged.

It is estimated that there were last season about sixty-five hotels and pensions, and 430 villas, with a rent varying from 2000 to 30,000 francs per season. F. M. S. says that about three quarters of the villas are let furnished, including plate and linen, by the season of eight months, from October 1st to May 31st, while "the remainder are the property of resident owners, some fifty belonging to French and sixty to English" proprietors.

With regard to the value of land at Cannes, I

shall quote a passage from the same authority (p. 17), which may interest people who desire to settle in the neighbourhood. "The increase of the value of land," he says, "in and about the town in the last few years has been, as might be expected, very great. It is all freehold; leases are unknown. That which twenty years ago was agricultural land, or sand-hills with scrubby pines, and worth about £80 the acre, is now building land, none of which can be had for less than £800 an acre, while the mean price is £1600. That on which part of the town is built sells at from £8000 to £16,000 the acre, according as it is more or less favorably situated. These prices will be considered high by Englishmen. The cost of conveyancing, which, in England, is so heavy, is next to nothing, but the government tax on property changing hands is 8 per cent. *ad valorem*, payable by the purchaser. On the other hand, the cost of building is less than in England by nearly one third, while materials and workmanship are remarkably good."

There is certainly no disinclination among the landowners of Cannes to part with their property at the price they ask, and notices of "*Terrain à vendre*," "Land for sale," meet the eye only too often in every direction, and everywhere the country is giving place to the ugly town.

The floating population of Cannes in winter, taking all persons who are attracted to the place by visitors—shopkeepers, servants, &c.—into account as well as visitors proper, is reckoned at about 6000 souls. The actual visitors probably amount to upwards of 3000. In Taylor and Riddett's 'Indicateur de Cannes' for April 24th, 1879, I found the names of 510 English families who were at Cannes on April 15th,

or who had since arrived. This was at the end of the season, with reduced numbers. F. M. S. found 750 English families present at the end of January, 1878. Of the principal nationalities the English come first, then the French, and then the Germans, though in much inferior numbers.

The large preponderance of well-to-do English visitors and the great demand for accommodation have combined to make Cannes rather a dear place to live at. Prices in the shops are, I think, higher than at Mentone, though, all things considered, the shops are perhaps better supplied and there are more of them. Extravagant prices are asked and obtained for villas. On the whole, too, the average cost of hotel living is dearer than at Hyères or Mentone. Fifteen francs pension per diem (board and lodging) may be taken as a pretty ordinary charge, and quite recently I have known sixteen and seventeen francs a day paid for south rooms. Of course in certain pensions board and lodging may be obtained for ten francs, or even eight francs a day, but this is quite the exception, as far as I can learn. At one first-class hotel at Cannes a winter or two ago I am informed that a particular party of four or five persons paid £90 a week to the proprietor.

I need not dwell on the kind of life an invalid ought to lead at Cannes, as the general remarks already made in Chapter IV apply with scarcely any modification to it. A south bedroom and sitting room are essential, and delicate people require to be particularly careful to carry some extra wrap with them in walking, to put on in the shade or in windy places.

For such invalids as are fond of society and careless of restraint, Cannes has its dangers and temp-

tations. In consequence of the permanent substratum of winter visitors many people know one another, and social entertainments, balls, dinners, and theatricals are common events. In these, with their attendant evils—late hours, exposure at night, and hot and crowded rooms—invalids *do* join, and from them they suffer.

The hotels generally thought to be best suited to chest cases at Cannes stand at some little distance from the sea, many of them—in fact, most—on a rising ground looking over the sea and the Îles des Lérins. Of these, the Beau Site and the Belle Vue, in the western bay, though dear, are highly spoken of. The Hôtel Pavillon, also to the west of the town, is too near the railway and the high road for most invalids, though an excellent hotel for ordinary visitors. In the east bay, on the eastern side of the Boulevard du Cannet (see below), the Beau-Séjour, Mont Fleury, Californie, Hôtel des Anglais, Hôtel de Provence, Richemont, Windsor, and Hôtel du Paradis are all good. On the west side of the same Boulevard the Alsace-Lorraine and Hôtel de Russie are both in good situations. New hotels are always springing up like mushrooms out of the ground, for example, the Prince de Galles, which was begun and finished between the seasons of 1877—1878 and 1878—1879. The Beau-Lieu hotel, about a mile to the north of Cannes, is placed rather higher than the majority and is out of the noise and dust. Near the sea-shore, the Hotels Gray et d'Albion, Quatre Saisons, Grand Hôtel, Beau-Rivage, Splendide, and des Princes, are much on a par. Invalids reaching Cannes for the first time ought to take the advice of a medical man before they finally settle where they will take up their winter quarters.

A few hotels have lifts, nearly all have more or less garden.

There is one part of the neighbourhood of Cannes which has not as yet been at all utilised for the service of invalids—namely, the village of Le Cannet, about two miles and a half to the north of the town. It is beautifully situated on the side, but well under the shelter of the hills which form the northern protection of the eastern bay. From the Place in the centre of the village the eye ranges first over the luxuriant orange orchards immediately below, and then over the broad valley and grey-green olives, until it reaches the red roofs of the new suburb of Cannes, and then beyond them the Mediterranean. A little to the west of the Place there is another magnificent view over the Îles Ste Marguerite and St Honorat, as well as over the town of Cannes and the valley of Le Cannet. The natives tell you that Le Cannet feels no wind, and it is easy to believe that they are right. At present a small pension or two is all the accommodation to be found there, and there is no sign of any hotel being built, although the distance from Cannes is not great.

The village itself is not specially inviting. The streets are narrow, and on a recent visit in May were swarming with flies, a fact which scarcely reveals a very cleanly state of things. Except that a rather pretty little Catholic church is being built, there is very little sign of change one way or the other in Le Cannet. There appear to be good fountains of running water in the village. Le Cannet cannot complain that it is cut off from the world, for within the last three years a new carriage road, in addition to the old one, has been constructed to it. It branches

off from the old Boulevard de Cannet just beyond the Hôtel du Paradis, the last hôtel to the north-north-east of Cannes, and winds through woods of Aleppo pine, and among vineyards and olive orchards along the eastern side of the valley. It is a very picturesque and well engineered road, and very superior to the old one, which lies in the hollow, and has but very little view. No doubt in time Le Cannet will find more favour than it has yet found, and it deserves to.

Cannes has a decided superiority to Mentone, and still more to San Remo, in the way of drives. Not only can one go further to the east and west of the town without encountering steep hills, but there are many more carriage excursions to be made inland; in fact, there is as much variety as most people would desire, and in every direction there are picturesque views, less grand, perhaps, than those of Mentone, but none the less pleasing.

Carriage-hire is very moderate, and the drivers have more of French civility and less of Italian roughness than further east. A one-horse carriage for two persons costs one franc for the *course* (from one point to another without stopping), and two francs for an hour's drive, and there is a very careful tariff for the various excursions, by which the coachmen are bound, and which prevents much imposition.

I do not intend to dilate much on the subject of drives or excursions round Cannes. I shall content myself with indicating a few of the most interesting, and shall refer my readers for fuller information to F. M. S.'s admirable guide book, to which I have already alluded.

Among drives of moderate distance, there is a

lovely one from Cannes towards Antibes, at first among pine woods and gardens, and then along the sea-shore, with pine-clad hills on the left, and here and there a villa. This district has of late been much improved by the construction of a good carriage road over the hills to join the road from Cannes by the Hôtel Californie to Vallauris (*Vallis aurea*), where the now well-known *pôterie artistique* is made. The views obtained in ascending these hills and from their summit are some of the finest to be met with on the coast.

Another very favourite drive well suited to invalids is to Le Cannet by the new Boulevard, and thence by a cross road among the vines and olives into the Route de Grasse, and home. Longer excursions, all fully described in F. M. S.'s guide book, are those to Auribeau, Mougins, and Grasse. The latter town is interesting as the headquarters of the scent trade and the manufacture of crystallised fruits and flowers (*violettes pralinées*, &c.). There are said to be fifty scent factories there; and during May, the great distilling month, 45,000 kilogrammes of rose-petals and 16,000 of orange-flowers are sometimes used daily (de Valcourt). The climate, though generally mild, owing to the shelter of high hills on the north, seems to be liable to sudden abrupt variations of temperature. A friend writing to me the other day declared that "Grasse is quite an Arctic climate, and one which I should think dangerous for invalids," but I think his was an especially unfortunate experience of it. I understand, however, that the accommodation for invalids at Grasse is not of the best, even if the climate were reliable.

Whether as an afternoon's drive, or for a stay of

some duration, but in either case a pleasant change from the dusty town, I think some persons may thank me for calling their attention to the Hôtel Garibondy, about three miles from Cannes, on the road to Auribeau, and completely in the country. It stands on an eminence formed by a mass of gneiss, and is reached by a picturesque road winding up through the woods. From the terrace to the south-west of the hotel there is a beautiful view in front over the Plaine de Laval to the Esterels and Napoule. On the right lies the sea and on the left the mountain ranges near Grasse. The aspect of the front rooms is nearly south, but the view is rather closed in by trees and shrubs. All round are woods of evergreen oak, deciduous oak, and fir, and on the slope to the west are some very fine and picturesque specimens of the *Pinus picea*, or umbrella pine. In May the woods are bright with the pink and white cistus, and a variety of other wild flowers, and the song of the nightingale* resounds on

* During the first few weeks after the arrival of the nightingale in its summer quarters on the Riviera, that is, during part of April and May, and, I suppose, while nest-building is going on, it sings as freely, if not more so, by day as by night. Whether in England it does the same I am ignorant, but, at any rate, Shakespeare was equally so, as appears from the following passage in the 'Merchant of Venice,' Act V, Scene 1. Dialogue between Portia and Nerissa :

"The crow doth sing as sweetly as the lark
When neither is attended; and I think
The nightingale, if she should sing by day,
When every goose is cackling, would be thought
No better a musician than the wren."

Unfortunately for Shakespeare, his conjecture as to the effect of the nightingale's day song on its hearers is quite wrong, if my own opinion is worth anything. Mrs. Somerville, writing from Italy ('Memoirs of Mary Somerville,' 1873, p. 357), is also an unconscious witness against

all sides. To the south-east the ground falls steeply down into a narrow valley watered by a little stream, which impresses any one by its retired situation and peacefulness. All round, in fact, there are pretty views to rejoice the heart of the artist. The soil dries rapidly, and there are plenty of sheltered nooks. The hotel itself will only hold about twenty people. The bedrooms appear comfortable, and there are good public rooms. The *pension* has been hitherto from eight to ten francs a day. The landlady seems civil and obliging. The main drawback is the distance from Cannes, but in the season an omnibus runs at certain times, taking passengers for one franc a head, and the hotel can be reached from the railway station in less than an hour. I cannot say whether the mistral is much felt, but I was there on a day when the north-east wind blew fresh at Cannes and there was scarcely any wind at Garibondy. At any rate, in April and May in an average season I am sure that even invalids may enjoy Garibondy, and of the purity of the air there can be no question. The railroad to Grasse runs just to the west of the hotel.

The neighbourhood of Cannes is not so well off for walks as drives, and some of the pleasanter nooks and quiet paths have of late been sadly broken in on by the irrepressible builder. For persons who can climb a little, I may mention as good points of view for the pedestrian the Croix des

him. "Our tame nightingales," she says, "sing beautifully, but, strange to say, not at night." The additional fact of domestication converting the nightingale into an ordinary day songster is very interesting, but I must leave professed naturalists to speculate on the reason of it.

Gardes, behind the Bellevue Hôtel in the west bay, ascended by a winding road, which can also be used by carriages, and the path by the canal on the hillside to the east of Cannes. For the latter, carriages are available, if necessary, as far as the reservoir above Californie, though the tariff for this excursion is high. From the reservoir, facing northwards, the rough country road to Vallauris is reached after about a mile's walk, and a small chapel, dedicated to St Anthony, stands about a hundred yards higher up. From the little mound behind the chapel a capital view is obtained of the snow mountains, and of the coast to the east as far as Bordighera. From the chapel the path to the north leads to the Grand Pin and Mont Pézou (873 feet), from the latter of which you get another good view of much the same country as before. Vallauris lies in the valley to the east. After passing the Grand Pin the path descends again to the canal, and then to Le Cannet; but if a shorter walk is desired, any of the paths down the hill will lead to some point on the road between Cannes and Le Cannet. The return to the valley may also be made by the Vallauris road, passing the Duke of Argyll's villa "Isola Bella" the grounds of which are very prettily laid out with dwarf palms, agaves, &c. In this case the Boulevard du Cannet is reached close to the gasworks.

I have spoken of this walk at some length, on account of the beauty of the views met with in taking it with comparatively little trouble. There was rather an outcry in 1878, at Cannes, on account of some attempts at highway robbery and one or two brutal outrages in the environs, but the authorities have since taken great pains to make the district safe

by increasing the number of police and gendarmerie, and there has been nothing to complain of this year (1879). I do not think, therefore, that people need be alarmed about walking in the woods.

The various necessities of life, and all those home luxuries which English people cannot easily endure the loss of, can be procured without difficulty at Cannes, and English tastes are well understood and carefully consulted in the hotels.

There is a good market, chiefly supplied in the matter of meat and poultry from a distance. Vegetables and fruit are brought in from the neighbouring districts. There is not much fish caught on the coast near Cannes, though the natives make a great parade both of nets and fishing boats. I am inclined, however, to think that some of them make a better harvest by the hire of their boats to visitors for sailing purposes than by fishing, and I may remark, in passing, that owing to the safety of the harbour at Cannes, landing from boats is easy, and those who enjoy the sea can indulge in sailing to their heart's content.

Last, but not least, I must mention, in concluding this chapter, that churches of nearly all denominations are to be met with at Cannes. The three English churches especially are very conveniently placed to suit the convenience of residents in different parts of the town and suburbs, but the clergy of the Riviera have still, alas ! as in England itself, to learn that services of an hour and a half or longer are not the best things for invalids, or that dreary sermons or monotonous chanting have no miraculous power to keep their hearers from colds and coughs. They have also, I regret to say, in most cases to learn the first principles of ventilation as applied to churches.

CHAPTER VII.

THE HEALTH RESORTS OF THE FRENCH RIVIERA.

NO. III—NICE.

NICE is, with the exception of Toulon, the largest town between Marseilles and Genoa, and though year by year it becomes less and less fitted for a health resort, in the true sense of the word, owing to the advancing tide of its crowded buildings, yet its European reputation and its old fame both demand that I should give a short account of it here. It is situated in $43^{\circ}41'$ north latitude towards the eastern extremity of a broad bay, which extends from the mouth of the River Var on the west, to the Cape of Mont Boron on the east. The real eastern limit of the bay, however, is the Peninsula of St Jean, which runs due south much further into the sea than the Cape Mont Boron, in conjunction with which it forms the beautiful land-locked harbour of Villafranca, or Villefranche as it is now called. The plain of Nice extends from east to west about four miles, and for a somewhat greater distance from north to south. It is bounded on the west by a range of low hills, which run due north and south for about seven miles, until they merge in the spurs of the highest mountain in the neighbourhood of Nice, and which fills up the background of the plain due north of the town, the Mont Cau, or Mont

Chauve (2824 feet), the “Bald Mountain.” The main spur of Mont Chauve runs southward, with gradually diminishing height, until it ends in the gentle slopes of Cimiez. Almost parallel to the southern spur of Mont Chauve the Alpes Maritimes send down another spur, which terminates in the Mont Broc, about five miles from Nice, whose southern slopes form the head of the true valley of the great Paillon torrent, which enters the sea in the centre of Nice. The Paillon is formed by the junction of two main branches, the western, which descends between Mont Chauve and Mont Broc, and the eastern, which comes through a gap between the latter and Mont Gros (1189 feet), the northernmost summit of a chain of hills which runs southward to terminate in Cape Mont Boron. These latter hills, which reach their greatest elevation at the points named—Le Vinaigrier (1201 feet), Montalban (1072 feet), Mont Boron (942 feet), form the eastern boundary of the plain of Nice, as well as its essential protection from easterly winds.

I have spoken of the *plain* of Nice, but in reality it is only in the immediate neighbourhood of the town and for a short distance from the coast along the edge of the bay that there is any level ground, the remainder of the area consisting of low ridges and shallow valleys, with a general direction from north to south. The most important of these—the Val de Magnan—is watered by the small river or torrent, Magnan, which runs under the lee of the western hill, and enters the sea not far from the centre of the bay, forming the western boundary of the well-known *Promenade des Anglais*, which I shall have occasion to speak of in detail later on.

The aspect of the country impresses one at once with the idea of considerable fertility. The hills are covered with olive trees interspersed with gardens and vineyards. Orange plantations are frequently met with near the town, and fields of grass are by no means uncommon. Over the whole plain and on the hillsides, countless villas and hamlets are scattered, the most important of these latter, as far as the invalid is concerned, being Cimiez, about two miles inland on a ridge, to the north of the town.

Nice itself may, for purposes of description, be considered as divided into an old and a new quarter by the Paillon torrent. The old part, which I shall speak of first, lies to the east, and the new to the west, and the main district occupied by strangers is to the west of the torrent.

The Paillon reaches Nice with a direction almost due north and south, with, if anything, a slight inclination towards the south-south-west. As it enters the town, however, it takes a decided bend to the south-west, which it maintains to within about a hundred yards of the shore, after which it runs due south into the sea.

On either side of the mouth of the Paillon, for more than half a mile, the shore line runs due east and west. To the east of this point, therefore, there is enclosed between the torrent and the sea a somewhat triangular or, more strictly speaking, a ploughshare-shaped tract of land, whose base is formed by the prominent cliff of the so-called Château Hill (312 feet), an eminence long ago crowned by a citadel, of which few traces now remain. The western portion of this tract of land is occupied by what is known as "the town of the eighteenth century,"

from the period in which it was built. The streets are rather narrow and the houses are chiefly used for business purposes. The Préfecture, the Post Office, the Public Library, and other municipal buildings, are in this quarter, and there are one or two hotels chiefly frequented by French people. The only street which deserves mention is the Promenade du Cours, parallel to the sea, from which it is separated by two rows of low houses known as Les Terrasses, and by the Quai du Midi. The Promenade du Cours is lined with trees, under which a vegetable market is held in the mornings. On the west it unites with the narrower Rue St François de Paul, considered by some the most beautiful street in Nice, which is entered from the handsome Place des Phocéens—a public garden planted with palm trees, eucalyptus, and various shrubs. The Place des Phocéens fills up the western extremity of the town of the eighteenth century. Returning to the east, we find the Ville Centrale, or the oldest part of the town of Nice, massed round the western and north-western flanks of the Château Hill, and bounded on the north by the large square or Place Garibaldi, surrounded by houses with arcades. The old town, with its narrow, irregular, and more or less dirty lanes and alleys, does not need more than a passing mention as far as invalids are concerned.

To the east of the Château Hill, and strongly ensconced between it and the promontory of Mont Boron, lies the harbour of Nice, with a small district surrounding its two basins. This quarter has been called “the Town of the Port.” A new road has been carried behind the harbour, around the slopes of

Mont Boron, to Villefranche, and numerous villas have been built on either side as far as Cape Mont Boron. The district of the harbour is now united with the districts to the west of the Château Hill by a road which runs under the southern face of the latter, and joins the Quai du Midi, but hitherto it has not been possible for a carriage to traverse the whole length of the Quai du Midi close to the sea, and it has been necessary to make a circuit through the Promenade du Cours and its continuation to reach the Place des Phocéens. In 1878, however, it was determined to widen the Quai so as to assimilate it to the Promenade des Anglais west of the Paillon.

We may now turn to the modern town of Nice, on the right bank of the Paillon, and we may consider the latter as bounded on the south by the Promenade des Anglais and the sea, on the north and north-west by the railway, and on the east and south-east by the Paillon. The houses of this part are most densely packed along and to the north-west of the torrent, while the north side of the Promenade des Anglais is only fringed by a narrow hem of villas and hotels. For easier description we may divide the modern town into two unequal halves, separated by the broad and handsome Avenue de la Gare, which runs in a south-easterly direction, from a point a little east of the railway station, to the Place Masséna—a square with arcades on three of its sides, and with the fourth opening on to the Pont Neuf, the principal bridge joining the two sides of the Paillon torrent. The southern part of the eastern half of modern Nice consists of a number of streets, either more or less parallel to the Paillon or running at right angles to it, but the northern portion and especially the Boule-

vard Carabacel, which lies at the foot of the sheltering hill which comes down from Cimiez deserves especial mention from the large amount of protection which the hotels and villas in the neighbourhood enjoy from northerly winds. Here and on the neighbouring *Avénue Beau-Lieu* are situated the hotels Windsor, Carabacel, Julien, and *Hôtel de Nice*, and the luxuriance of the gardens and the nearness of the fields gives this favoured region a most inviting aspect. The *Boulevard du Debouchage*, which joins the *Avénue de la Gare* to the *Boulevard Carabacel*, is also lined with handsome villas. The north-west bank of the *Paillon* as far as the *Place Masséna*, is occupied by the *Quai St Jean Baptiste*, very similar in appearance to the quays which fringe the *Seine* at Paris. The lower half of this quay has a south-south-easterly aspect, and consequently is very sunny and in calm weather warm; hence it is not only a favourite promenade, but some of the large hotels, for example, *Chauvain's* and the *Grand Hôtel*, look out on the *Paillon*, and there are some excellent shops to be met with here. A part of this quay has been united to the *Boulevard du Pont Neuf*, which runs parallel to it on the other side of the *Paillon*, by a very handsome public garden or square constructed on arches thrown over the torrent, and which conceals the dry and pebbly bed of the latter in the happiest manner.

The district of modern Nice to the west of the *Avénue de la Gare* is the strangers' quarter proper, though, on hygienic grounds, there is much to be said against it. The name of *Quartier de la Croix de Marbre* has been given to the network of streets which fill up the apex of the blunt angle formed by

the *Avénue de la Gare* and the *Promenade des Anglais*. The name originates in a marble cross, which was erected more than three hundred years ago, as a memorial of an interview between the Emperor Charles V, Francis I of France, and Pope Paul III, and which led to a truce of ten years' duration between the two monarchs. This cross stands in a square of the same name behind the *Promenade des Anglais*, not very far from the English church and its cypress-shaded cemetery. Only the outskirts of the *Quartier Croix de Marbre* are, as a rule, inhabited by visitors to Nice; on the east, in the *Avénue de la Gare*, there are the hotels *des Îles Britanniques* and *des Empereurs*. From the *Place Masséna* the *Quai Masséna* flanks the right bank of the *Paillon* for half the distance between *Pont Neuf*, already mentioned, and the broad *Pont de l'Embouchure*, which joins the *Quai du Midi* at the *Place des Phocéens* to the *Promenade des Anglais*. The other half of the distance is filled up by the eastern side of the public garden, an oblong space open on the south to the sea, and bounded by the *Promenade des Anglais*, and enclosed by lofty houses on the north and west.

While the *Quai Masséna* may boast of the handsomest shops at Nice, the *Jardin Public* has the most beautiful and shady avenues of trees. Two of the most frequented hotels, the *Hôtel d'Angleterre* and *de la Grande Bretagne*, occupy the north side of the garden, while the *Hôtel des Anglais* is situated at the south-western corner close to the *Promenade des Anglais*. I may now say a few words about this celebrated esplanade, which holds the same relation to Nice as the *Chiaia* does to Naples or the *Marina* to Palermo. It derives its name from the fact that it

was constructed to a large extent at the expense of the British residents at Nice in 1822, 1823, and 1824, the object being to give occupation to the poorer classes of work-people. The length of the promenade from the mouth of the Paillon to that of the River Magnan is about a mile and a half, and its width about eighty feet. There are no houses on the south side, but there is a broad footpath separated from the sea and the narrow beach by a hedge; on the side of the carriage road away from the sea an excellent pavement divides it from the hotels and villas which face the sea either isolated or in blocks throughout its whole length. The footpath near the sea is excellently kept and is planted with evergreen oaks and other ornamental trees and shrubs, and furnished with abundance of seats. It also has the great advantage of rapidly becoming dry enough for walking after rain.

If we stand on the Promenade des Anglais, a little to the west of the public garden, the panorama before our eyes embraces the following objects:—To the south, the open sea: to the south-south-west, the long promontory of Antibes, and more to the south-west, the blue summits of the Esterel mountains; still more to the west, we have the near shore of the Bay of Nice elevated but little above the sea, and studded with villas. On the west-south-west the hills rise gently a few hundred feet, to form the western ridge which bounds the plain of Nice, and then the shore bends round till we get a foreshortened view of the whole length of the Promenade des Anglais running due east and west. Turning eastwards, we have to the east-south-east the extremity of the promontory of St Jean beyond Villefranche,

with its revolving lighthouse; nearer, there is the Château Hill, and behind it the Mont Boron separated by a gap a little north of east from the ridge of Montalban. Through this gap, the easterly winds find readier access to Nice. Of the hills on the north, very little can be seen from the Promenade. but from other points of view it is easy to convince oneself that they are too far back, and too much intersected by valleys, to be a great shelter to the plain in that direction, and although, far in the distance, near the Col di Tenda the Alpes Maritimes attain a considerable height, they can scarcely benefit Nice as much as is generally supposed, owing to the cold currents which descend from the snow fields on their southern face. It would be impossible to enumerate all the villas, pensions, and other edifices with which the north side of the promenade is lined; I may mention, however, the Cercle de la Méditerranée—the great Strangers' Club of Nice—the Hôtel de Luxembourg, and the Hôtel de la Méditerranée and Rome. Some of the villas are extremely handsome, and have gardens with luxuriant shrubberies, many of them being occupied winter after winter by their own proprietors. The district west of the River Magnan is known as the Quartier St Helène, and numerous villas with large gardens are scattered over it. Of these, the Villa des Palmiers, belonging to Mons. Gambart, and formerly known as the Villa Gastaud, is the most remarkable.

The Pension Anglaise to the west of the Promenade des Anglais deserves mention for its sheltered position under the lee of the hills on the north-west. There can be little doubt that this part of the plain of Nice suffers the least from the mistral. The

most westerly points of immediate interest to the Nicæans, are the Jardin d'Acclimatation near the railway bridge at the mouth of the Var, and the adjacent race-course, the former to the north, and the latter to the south of the railway to Marseilles.

At the back of the Promenade des Anglais, from the bridge over the Magnau torrent to the square of the Jardin Public, runs the rather narrow Rue de France, nearly parallel to the shore. This street traverses the whole length of the Quartier Croix de Marbre, and in it are a number of pensions and villas, the École Municipale, a large Catholic boarding school for girls, and other buildings. In consequence, however, of the great amount of traffic through it at all hours of the day and even at night, it is too noisy for invalids, and it is also too much exposed to easterly and westerly winds.

I must not leave the suburb of Nice, called Cimiez, without a brief mention. It lies due north of the town, and about two miles from the sea, on an eminence, already referred to, which is ascended by the Route de Cimiez, starting from the Boulevard Carabacel and winding among villas and gardens until it reaches the level part of the ridge among the olives. Before reaching Cimiez itself (which is rather the name of a locality than of a village, as there are only scattered houses there), the carriage road passes through the ruined amphitheatre which belonged to the ancient Roman town of Cemenelum, but which is much inferior in interest to several other similar amphitheatres still existing in Italy and France (Verona, Arles, &c.). Not far from the amphitheatre are situated the three hotels and pensions with which Cimiez is at present provided, the Villa Garin, kept

by two English ladies, the Pension Anglaise, and the Hôtel Vitali, and a few hundred yards farther on, we reach the platform on which stands the Monastery of Cimiez, with its church and cemetery. All around are olive groves and gardens. The district of Cimiez is stated to be "tolerably sheltered from the north, east, and west winds, and to be exposed mainly to the mild south winds from the sea" (Lippert). It is said also that its mean temperature is higher than that of Nice itself, but I know of no published statistics on this point. From my own observation and inquiries, I am very sceptical as to the immunity of Cimiez from winds, especially the mistral, as it is so much less under the shelter of the north-western hills than Nice, owing to its greater elevation. I find, in fact, since writing this sentence, that de Valcourt (l. c., p. 151) admits that both Carabacel and Cimiez are reached by a violent mistral. The chief advantage of Cimiez is its distance from the sea, and from the whirl and dust of a great and fashionable town. I fear, however, it is rather a dull place to stay at, unless you have a great taste for Roman antiquities.

After this topographical account of the Nice district, a few words on the geology of the latter will not be out of place.

The plain of Nice is a delta, which owes its formation to the rivers Var and Paillon, and the town itself is built on a sandy alluvial soil, which rests about ten or twelve feet below the surface on a bed of clay. Owing to the latter, the water which filters through from above is partially retained and accumulates, so that in almost any part of the town, water can be reached by boring a few feet, and in some

places it is necessary to drive piles before laying the foundations of a house. It does not, however, appear that Nice is at all damp or malarious. The western districts of the plain are the driest, owing to the hills and gentle eminences of this part being composed of coarse conglomerates of sand and gravel, with but a very small admixture of clay. The northern hills (Mont Chauve, Mont Broc) consist of Jurassic limestone, and the same is true of the chain of Mont Vinaigrier, Mont Boron, and, also of the Château Hill. Mont Vinaigrier and the other hills of the range dividing Nice from Villefranche also contains veins of chalk. The ridge on which Cimiez is built, as well as its southern termination at Carabacel, contains gypsum (sulphate of lime), which affects the quality of the water for household purposes. Bone caves, like those at Mentone, have been discovered in the substance of the Château Hill, and elsewhere.

Altogether the geology of Nice is of far less interest than its meteorology, which has been studied by careful observers (Risso, Roubaudi, and especially Teyssie) since the beginning of the present century. M. Teyssie has now published yearly observations since 1849, and I shall mainly refer to them. It must be remembered, however, in dealing with M. Teyssie's temperatures, that his thermometers are not hung at the usual height of four feet from the ground, but about fifty feet above it, outside the window of a fourth floor room; also that the house is surrounded by other high houses, which must exert a modifying influence on the readings recorded. Teyssie gives the mean temperature of Nice as 60.3° Fahr., or very nearly that of Pisa and Rome. The mean temperatures of the seasons are—winter (Decem-

ber—February) 49.1° , spring (March—May) 58.1° , summer (June—August) 73.6° , autumn (September—November) 61.9° .

The differences between the mean temperatures of the different months are as follows :

Between—

January and February	+1.3	...	July and August	-0.2
February „ March	+3.4	...	August and September	-5.8
March „ April	+6.3	...	September and October	-6.5
April „ May	+6.1	...	October and November	-8.8
May „ June	+6.8	...	November and December	-5.2
June „ July	+4.0	...	December „ January	-1.4

The comparatively slight variation of temperature in the winter months and the great fall, which occurs between October and November, should be noted.

The mean temperatures of the winter months, calculated by Reimer from the observations of Risso (1806-25), Roubaudi (1830-42), and Teyssaire (1849-68), are :—

Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
63.0	54.9	48.9	46.9	48.7	52.2	57.6

Teyssaire's own mean temperature for twenty-eight years will be found in the meteorological table a few pages further on.

The minimum temperature of the year is given as 26.6° Fahr., but this occurs only at night, and the thermometer is said never to fall below 32° Fahr. by day, though from my own observations at the warmer Mentone, and also at San Remo, I very much doubt this statement.

November and December are the mildest and brightest of the four true winter months, and January and February the coldest. In March there are great

variations of temperature, accompanied with rough winds and clouds of dust.

The summer temperatures of Nice are not excessive, owing to the sea and land breezes by day and night. The highest summer temperature recorded by Teyssie in twenty years was $92\cdot6^{\circ}$, but, as I have previously implied (see Chapter IV, p. 161), the mosquitoes are all along the coast sufficient to prevent any invalid, or healthy person, not absolutely obliged, from passing the summer at Nice, or any of the other seaside health resorts of the Riviera. The mean annual barometric pressure is $760\cdot85$ millimeters (Teyssie), the highest pressures occurring in January and September, and the lowest in March and November. The highest mean difference recorded between the mean maxima and minima of the year in twenty years is $35\cdot2$ mm., the highest absolute reading during the same period $779\cdot3$, and the lowest absolute reading $735\cdot3$.

The mean barometric pressures of the months of the winter season, according to the latest observations, are embodied in the meteorological table.

The mean daily variation in barometric pressure between sunrise and sunset is $1\cdot51$ mm., the minimum variation being $1\cdot11$ mm. in May, and the maximum $1\cdot93$ mm. in March, at the time of the vernal equinox.

The barometer at Nice, as in other parts of the Riviera, rises for south and south-east winds, and falls for north-west and north winds, whereas in England and Northern Europe the reverse is generally the case. Risso (vol. ii, p. 211) states that "in general, sudden falls of the barometer are almost always produced by the north-west wind, whereas

rains only cause the mercury to sink gradually and almost imperceptibly."

The relative humidity for Nice has only been observed by the modern system of dry and wet bulb thermometers (Mason's or August's psychrometer) since 1869. The old observations with the de Saussoures' instruments gave too low readings. The modern means are given in the table already referred to. Speaking generally, the highest humidity occurs in September, the lowest in January and March.

The mean annual humidity at sunrise is 61·4, at 2 p.m. 59·6, and at sunset 60·9. The highest absolute humidity recorded is 97·0, the lowest 23·0.

Teyssie gives the following details as to the mean proportion of sunny, cloudy, and rainy days at Nice.

	Sunny.	Cloudy	Rainy.
Mean of 20 years.....	219·2	77·3	67·4
By seasons—			
Winter	52·4	21·1	16·3
Spring	51·6	20·3	19·3
Summer.....	65·7	16·0	9·9
Autumn.....	49·3	19·6	21·9
Mean for winter season, Oct.—			
May	135·8	55·3	52·8

The mean annual rainfall is 27·91 inches, according to Robaudy (eight years), but 32·43 inches according to Teyssie (seven years). For the winter months I have given Teyssie's figures, with the maximum and minimum fall for each month in the meteorological table.

Most rain falls in October, November, April, and May, and especially in October and April. The rainiest winds are given in the following order:—east, south-west, north-east, north, south, south-east, west, north-west; but from my own observation I should say that the most severe and protracted rains come from the south-east, or south-south-east, and I find that I agree with Risso on this point. Our estimate of the climate at Nice must largely depend on our knowledge of the prevailing winds, for Nice is a very windy place. Lippert admits that on one day in every four between 10 a.m. and 4 p.m. there are more or less violent gusts of wind, and Teyssere gives the following mean figures for the number of calm and windy days in the different seasons.

	Strong wind.	Gentle wind.	Complete calm.
Spring	29·4	62·6	3·9
Summer.....	19·0	73·0	4·2
Autumn.....	20·4	70·6	5·5
Winter	19·6	70·6	9·2

The mean monthly number of days on which there are rough winds (*vents forts*) during the winter season is—

	Days.		Days.
October	7·8	February	7·5
November	6·0	March.....	9·7
December	4·7	April	9·1
January.....	5·5	May.....	8·2

Hence the windiest months are March, April, and May.

Generally speaking, it may be said that northerly currents prevail in autumn and winter, and southerly

in spring and summer. During the latter season the wind blows almost exclusively from the south-east. The most violent winds are the east and south-west, and in November at times the north-east, but moderate winds blow from the same quarters. The east wind is the most common of the rougher winds, and it blows on the average forty-five days in the year. The south-west wind blows on an average twenty-one days in the year, and it is especially violent at the time of the autumn equinoctial rains.

On the average there are eight days of north-east wind annually, and this wind is liable to be accompanied by hail storms, and even snow. The mistral (north-west or west wind) blows about nine times in the year, chiefly in February and March, and it is accompanied by clouds of dust, whose density has been compared to that of London fog, while at the same time the amount of moisture in the atmosphere is reduced to a minimum. The north wind is said not to be a frequent visitor to Nice, but there is not the least doubt that the winter climate of Nice is largely affected by northerly currents which find their way down to the plain through the valleys on either side of Mont Chauve, and especially along the bed of the Paillon torrent. Risso (l.c., p. 216) says "the *tramontana* is the prevalent wind at Nice during a great part of the year, generally at night time."

According to M. Roubaudy ('Nice et ses Environs,' 1843), the characteristics of the climate of Nice, as far as winds are concerned, may be summed up by saying that the gravest objection to it is "the extreme inconstancy of the winds, which frequently change their direction several times a day. These unex-

pected changes sometimes bring with them such renewed cold, that if Nice has no winter, in revenge, one finds no spring there." Risso (p. 222) has a similar observation.

Meteorological table for Nice (Teyssie) for twenty-eight years (1849—1876), except where specially noted.

		Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
1852-1876	Barometer—							
	General mean	760·75	754·11	760·89	762·66	762·03	759·43	760·49
	Absolute minima ...	735·6	738·0	738·6	735·3	738·0	740·0	740·9
	Absolute maxima ...	773·70	777·0	777·0	779·3	776·4	775·7	773·5
	Thermometer—							
	General mean	61·61	52·80	48·2	46·72	48·43	51·22	57·54
1863-1876	Absolute minima ...	36·7	31·1	36·9	36·5	38·3	33·1	37·2
	Absolute maxima ...	88·16	74·7	65·3	66·6	66·0	70·5	82·0
	Relative humidity—							
	General mean	62·6	62·4	63·0	65·9	59·9	55·7	60·4
	Absolute minima ...	10·0	12·0	09·5	09·0	28·0	10·0	12·0
	Absolute maxima ...	92·0	94·0	97·0	95·0	94·0	91·0	93·0
1870-1876	Rainfall in inches—							
	Mean	6·13	5·11	4·12	3·06	1·68	2·89	2·59
	Minima	1·75	1·05	0·06	0·31	0·11	0·34	0·08
	Maxima	9·36	11·43	12·07	9·0	3·46	6·0	5·47
	Mean number of rainy days	7·1	7·2	5·7	6·0	5·2	6·4	5·7

The other meteorological facts connected with Nice are unimportant. As elsewhere on the coast, except at Hyères and occasionally at Cannes, there are no fogs worth mentioning. Hail and sleet fall on the average on 3·5 days annually; the former usually in March, and the latter in November and March. Snow may fall on one or two days in November and

March, but rarely nearer than the surrounding hills, and it never lies long. Thunderstorms occur about fourteen times a year, chiefly in October and during the summer months. They are said to be unknown in December.

The drainage and water supply of a health resort are scarcely, if at all, less important than its climatic conditions, because if people are to be poisoned by sewer gas or previous sewage contamination, they had better stay at home. As far as drainage is concerned there is still room for much improvement at Nice. Almost every visitor must at some time or other have noticed the horrible smells at certain points along the beach where open drains discharge themselves. One of these, which might certainly be covered in and carried by a pipe well into the sea, has existed, from time immemorial, opposite the Jardin Public. Open drains are also allowed to discharge among the dry pebbles of the Paillon. The greater part of the nightsoil is, I believe, removed in pneumatic reservoirs to the outskirts of the town, and used for manuring gardens. The district around the base of the Château Hill will no doubt be rendered healthier by the removal of the cemetery, which now occupies the northern part of this eminence, to the west of the town in the neighbourhood of the Var.

The water supply of Nice is at present derived from springs near the town, but it is very hard and contains a great deal of carbonate and sulphate of lime. The town will soon, however, have abundance of excellent water from the River Vésubie, which rises at the Col de la Fénestre high up in the Alpes Maritimes. Some of the springs, especially the Fontaine de la Ville, not far from the harbour, afford

much purer water than that supplied from the wells of the town Compagnie des Eaux. The springs at Carabacel and Cimiez contain so much sulphate of lime as to be unsuitable for drinking.

I may here devote a little space to the effects of the climate of Nice on the inhabitants themselves, and I may once for all acknowledge my great indebtedness to Dr Lippert's recent work, 'Das Klima von Nizza,'* especially for statistical details. The mean mortality, in the town of Nice, ranges from 3 to $3\frac{1}{2}$ per cent.; and in the country districts from about $2\frac{1}{2}$ to 3 per cent. It is said that $\frac{1}{20}$ of the population consists of people who have passed their sixtieth year. The mean duration of life at Nice for men, is twenty-nine years one month, and for women, thirty-one years seven months. The population of Nice at the last Census, was 54,880 inhabitants, without reckoning winter visitors, whose numbers may be calculated at from 10,000—15,000 and upwards more. The number of deaths for the eleven years from 1864—1874 inclusive, is shown in the following table compiled from the official registers :

Sex.	Year 1864	1865	1866	1867	1868	1869	1870	1871	1872	1873	1874	Totals.
Men.....	462	573	491	471	533	560	614	653	522	515	565	5959
Women...	488	596	491	451	513	513	492	580	520	503	541	5688
Children under 10 years	644	730	482	567	701	698	652	914	626	700	642	7356
Total...	1594	1899	1464	1489	1747	1771	1758	2147	1668	1718	1748	19,003

* Second edition, Berlin, A. Hirschwald, 1877.

As will be seen from this table, the male and female mortality are very equal ; whereas, ordinarily that of the males is considerably in excess over that of the females.

The prevailing diseases in the different seasons of the year, at Nice, are according to Lippert as follows :—In the winter, colds and catarrhs, tonsillitis, bronchitis, pneumonia, and pleurisy ; the latter, however, being more frequent during the changeable weather of March and April. Croup and diphtheria are not uncommon among children, though they usually run a mild course. The spring is the least healthy of the seasons, and has the largest mortality. Pleurisy and the epidemic diseases of childhood are generally met with at this time. The commonest diseases of summer, as might have been anticipated, are those of the digestive organs—gastric and intestinal catarrh, summer cholera, hepatic derangements, and catarrhal jaundice ; typhoid fever also occurs sporadically, and conjunctivitis, and other affections of the eyes due to the dust and glare of the sun are by no means rare. In the autumn, with its variable temperatures and copious equinoctial rains, diarrhœa and dysentery, as well as acute and other forms of rheumatism are the commonest ailments, and scattered cases of intermittent fever are occasionally met with in the neighbourhood of the harbour.

The chronic affections of the stationary population of Nice are of great interest to the physician who wishes to form a correct estimate of the probable effects of the climate on outsiders. The question of the prevalence of phthisis is of course of the greatest importance, and if the statistics which Dr Lippert gives from the books of the Hôpital St Roch for the

years 1860—1862, may be taken to represent the present state of things, there can be no doubt that phthisis is rare among the indigenous population.

Table of in-patients at Hôpital St Roch, Nice.

	1860.		1861.		1862.	
	Men.	Women.	Men.	Women.	Men.	Women.
Admitted	1203	237	809	225	1024	314
Discharged	1087	208	781	185	969	259
Deaths.....	71	39	56	39	59	41
Of this number the total deaths from chronic bronchitis, chronic pneumonia, hæmoptysis, and "tubercular" consumption together were.....	7	5	8	3	3	4
And from phthisis alone	1	2	3	—	1	2

It seems very probable, however, that with the great extension which Nice has undergone of late years, and the consequent increase of dusty streets in the place of the fields and gardens which formerly existed, the mortality of phthisis has increased. It is difficult to prove this, owing to the non-separation of the deaths of strangers and natives in the tables published by the *Etat Civil*, but later statistics undoubtedly show a larger percentage of deaths from phthisis than formerly. This the following table proves.

Years.	Total mortality from all causes.	Mortality from phthisis alone.	Proportion of deaths by phthisis to deaths from all causes.	Percentage mortality from phthisis.
1870	1758	136	1 : 13	7 $\frac{3}{4}$
1871	2147	156	1 : 14	7 $\frac{1}{2}$
1872	1668	179	1 : 9 $\frac{1}{2}$	10 $\frac{1}{2}$
1873	1718	193	1 : 8 $\frac{1}{2}$	11 $\frac{1}{4}$
1874	1748	185	1 : 9 $\frac{1}{2}$	10 $\frac{1}{4}$
1875	1727	241	1 : 7	14

Of course this higher percentage of deaths from phthisis, may be due to the increased influx of invalids with advanced disease from the north, but it is probably partly due to other causes.

I have already referred to the prevalence of pleurisy and pneumonia at certain seasons of the year. Dr Lippert states that pleurisy with effusion is not at all rare among the Nicæans, no more are chronic bronchitis and emphysema. On the other hand, chronic heart disease is relatively rare, even as a sequela of rheumatism. Varicose veins are very common among the women, and the latter suffer much from gastric and intestinal troubles, mainly owing to the coarseness and indigestibility of their food, and the warmth of the climate in summer. Cancer of the stomach is very rare ; on the other hand, neuralgia of intermittent type is extremely common, as well as hysteria and chlorosis among the female population. Apoplexy, according to Lippert, is not especially frequent (*cf.* p. 140, *antea*), if due care is taken to protect the head from the sun, and live temperately.

Diseases of the spinal cord are not common. Renal diseases (Bright's disease, except the acute form following scarlet fever, and renal calculus) are

very rare. Gout is also seldom met with, though rheumatism is common enough, as might be expected in a climate where there are such differences between the temperature of the sun and shade. Diabetes is very rare, scrofula and rickets are most unfrequently met with in the older quarters of the town, as is also chlorosis among women. Syphilis and venereal diseases are by no means uncommon, as well as the ordinary skin diseases, such as eczema, psoriasis, &c. The ordinary entozoa—ascarides, oxyurides, and *tænia solium*, appear to occur with about the same frequency as they do in the north. The comparative frequency of inflammatory affections of the eyes, has been already mentioned.

What patients, does experience show, do best at Nice? Generally speaking, those who can bear a bracing climate and an atmosphere which is seldom perfectly calm. Like all the health resorts of the Riviera, Nice enjoys a bright sunny sky, a pure air, especially in the thinly populated districts, and a large number of fine days may nearly always be depended on throughout the winter season. The great drawbacks of the climate are, the insufficient protection of the plain of Nice from cold currents, the draughtiness of the streets, and the dust. The latter in the dry weather which is so common from January to March is most annoying even to healthy people, and it is unnecessary to point out how injurious it is to patients with delicate lungs. As far as I have observed the dust is the feature which most impresses casual visitors to Nice, and which they complain of most.

The district of Nice has this great advantage, that it affords an extensive choice of residences

to invalids. They can live close to the sea, within a quarter or half a mile of the sea, or if necessary, two miles from the sea; and they can live in the open, under the shelter of hills, or on the slopes of the hills themselves, so as to have all the advantages which a large town confers free from many of its drawbacks. Cases of phthisis not too far advanced may be sent to Nice, on condition that they live away from the sea, for example at Carabacel, which appears to me on the whole, to be the most sheltered part of Nice. The more torpid forms of phthisis with but slight fever, and occurring in persons of phlegmatic disposition, are best suited for wintering at Nice. On this point Sigmund (l.c., p. 299) expresses himself as follows:—"Chest patients with easily excitable, nervous and vascular systems, or with recent symptoms of an inflammatory nature, should be warned to avoid Nice." Chronic bronchitis with abundant expectoration, especially in elderly people, does well at Nice, as does also nervous asthma in old people. It is doubtful whether cases of chronic pleurisy should be sent to Nice, seeing how often this disease depends on cold winds or sudden changes of temperature, and seeing too that pleurisy is far from uncommon among the fixed population of Nice. Diseases of the larynx, Lippert thinks, do better in a moister climate such as Pau or Pisa, or perhaps the eastern Riviera. Patients with disease of the heart, if they are sent at all to Nice, must avoid the exciting influence of the sea, and live as much as possible in the country. Cases of aneurism should not be sent to Nice. There can be no doubt that with proper attention to diet and exercise, patients with uncomplicated dyspepsia and intestinal catarrh will

do exceedingly well there, especially as the liveliness of the streets and the variety of amusements will tend to distract the attention of the patient from his ailments. Persons with chronic catarrh of the bladder, as also those with urinary calculus, are said to be benefited by residence at Nice. Cases of gout will improve under the stimulating influence of the climate on tissue change, but the temptations to the pleasures of the table are on the whole too great at Nice for this class of patients, who are their own worst enemies, and generally appear to do their utmost to counteract the counsels of their physicians, and the benefits of the climate. Cases of Bright's disease and diabetes often, Lippert says, do extremely well at Nice, though Lebert held a different opinion as to the former. The diseases of the nervous system which may be expected to benefit at Nice are locomotor ataxy, progressive muscular atrophy, chronic softening of the brain, and the mental diseases hypochondriasis and melancholia. No mental diseases associated with excitement should be sent to the South. In spite of the comparative frequency of rheumatism among the inhabitants of Nice, visitors in good circumstances, and who are able to take the necessary precautions, are found to gain much benefit from the warm sun, though it seems probable that there would be less risk in sending them to the more sheltered coast towns further east. Generally speaking, skin diseases are not suited for the climate of Nice; on the other hand, lymphatic and scrofulous individuals, chlorotic women, and anæmic or delicate children, or adults without organic disease, are largely benefited by the tonic and invigorating air. Patients belonging to the latter category, dyspeptics, and those not subject

to feverishness or neuralgia, may live close to the sea with great advantage, whereas chest patients either phthisical or otherwise (the latter especially if subject to hæmoptysis), should avoid the sea shore and live at Carabacel, Cimiez, and the districts to the north of the railway, St Etienne, St Philippe, &c. The same caution applies to cases of heart disease, cerebro-spinal mischief, renal, uterine, and rheumatism affections; but no invalid should ever think of settling down at Nice for the first time without consulting one of the local medical men. The season at Nice lasts from the end of October until April. Opinions are divided as to the necessity for leaving Nice during the windy period of March. I have myself been twice at Nice in March and the beginning of April, without meeting with particularly windy days, in fact, on the first occasion I met with infinitely rougher and more unpleasant weather at Ajaccio in Corsica, a few days later, although Professor Sigmund (l.c. 286) recommends patients to leave Nice and go to Ajaccio at this time to avoid the winds; advice which I can by no means endorse. As far as I can see, patients may just as well remain at Nice in March as at Hyères or Cannes, and if they stay so long they may as well remain until the end of April or the middle of May.

Prices at Nice are both high and low. In a list before me, I find villas quoted at from 1000 to 20,000 francs for the season, and suites of rooms at from 2000 to 8500 francs. I need not enlarge on this point, but I would warn persons who have never spent a season at Nice, not to secure rooms for the winter, as I have known some do, without ever seeing them, or even understanding their situation.

As to amusements, what with theatres, operas,

balls, soirées, &c., there is only too much even for healthy people. The society is extremely mixed, as Nice is more uniformly frequented by the nations of Europe and the world, than any of the other southern health resorts ; but the larger number of winter visitors come not for health but for pleasure, which, in other words, means gambling at Monte Carlo, or playing baccarat at the clubs on the Promenade des Anglais. Certainly some of the social aspects of life in that city might well be dispensed with, and to learn morality in any sense of the word we must not go to Nice.

CHAPTER VIII.

THE HEALTH RESORTS OF THE FRENCH RIVIERA.

NO. IV—MENTONE.

MENTONE is situated in $43^{\circ} 47'$ north latitude, fifteen miles by rail from Nice, and about two and a half miles from the Italian frontier. It is a town of 7800 inhabitants, according to the Census of 1876, but during the winter season, the influx of strangers raises it to, it is said, upwards of 14,000. The Mentone district extends for above six miles following the coast line from the Cape St Martin on the west, to Cape Mortola on the east; the distance, in a direct line, between these two points being nearly four miles. The old town of Mentone divides this district into two nearly equal divisions or bays. The eastern indentation, commonly called the "East Bay," however, is a deeper one than the western, and its centre looks due south; the centre of the west bay, Golfe de la Paix (*Sinus Pacis*), has an aspect nearly due south-east. The general aspect of the Mentone coast from Cape Mortola to the Cape St Martin is south-easterly, and hence its direction runs nearly from north-east to south-west. The posterior and lateral boundaries of the Mentone district, are formed by a rough semi-circle of limestone mountains, the highest peaks of which exceed 4000

feet. The eastern wall rises almost abruptly from the sea, between Cape Mortola and the Italian frontier, at the gorge of the Pont St Louis, and runs in a north-north-westerly direction till it culminates in the double peak of the Berceau (3575 feet), and of the Grand-Mont or Grammont (4478 feet). The mountains now take a westerly direction, and between the two peaks of the Rasel (4095 feet) and the Cima d'Ours (3932 feet), leave a gap or pass by which the carriage road from Mentone to the Col di Tenda and Turin descends into the plain of Sospello. This pass, which is the lowest point of the amphitheatre of mountains which guards Mentone, is 2574 feet above the sea. From the Cima d'Ours, a continuous chain the highest peaks of which are the Aiguille or Mont Baudon (4192 feet) north of Mentone, and the Agel (3695 feet) about five miles and a half west of the town, bends gradually round through west to south until it terminates in the bold headland of the Tête du Chien (1761 feet) above Monaco. A spur sent down from the Agel to Cape St Martin forms the western geographical boundary of the Mentone district. Except at its eastern and western extremities the main bulk of the limestone wall does not come nearer the Mentone coast than three miles, the well-known precipices of St Agnès nearly north-west of Mentone representing its southern limit. The lower hills or ridges which run from the mountains nearly to the sea, and at almost right angles to the shore, though in most cases originating in underlying spurs of the limestone, consist almost entirely of a more or less compact sandstone, evidently an old sea-bottom which has been upraised. These hills to which Mentone largely owes the variety of its

scenery and of its excursions, attain a height of from 400 to 700 feet. The valleys between them are watered in rainy seasons by torrents which, at times, attain considerable volume and force.

In beginning the more detailed description of the immediate neighbourhood of Mentone and of the town itself, it will be best to start at the western boundary of the district near the Cape St Martin, and to travel from west to east. Supposing, then, for simplicity's sake, we descend from the ridge of the Cape St Martin by the carriage road from Nice, as in the old days before the railway was opened, about two miles from the town, we are flanked on either side by olive groves of considerable extent, and, in parts, of great antiquity, which extend almost to the seashore. The road is, at first, somewhat less than half a mile from the sea, but it gradually approaches it, until at the small stream which issues from the Gorbio valley, about a mile and a quarter from the town, it is only separated from the sea on its right by a strip of land less than fifty yards in breadth. From this point onwards it is perfectly level and runs at about the same distance from the shore as far as the town itself. Part of the land in the immediate neighbourhood of the shore to the west of the Gorbio River is occupied by extensive orange gardens, and there are a certain number of villas with gardens on either side of the carriage road. The Gorbio River is the boundary between the communes or parishes of Roquebrune or Roccabruna, a picturesque village on the western side of the mountain spur which ends in the Cape St Martin, and of Mentone, and at this point the hills approach so near the shore as to leave a level strip of alluvial land,

which at no point between this and the town reaches half a mile in width, and whose average width is only a few hundred yards. This land is entirely occupied by villas and gardens, several of them belonging to permanent residents. They are, however, unfortunately shut off from the road by high walls to protect the trees and shrubs from the sea breeze, and hence do not add much picturesqueness to the scenery. Some fine umbrella pines in the garden of the Villa de la Madone can be seen even from the road. Immediately after passing the Gorbio bridge there is a rather handsome new villa on the right of the carriage road, and close to it the most western of the hotels, the Hôtel Pavillon, facing the sea with the Palais Carnolès, the old villa of the Prince of Monaco, on the north side of the road opposite to it. Then follows a long piece of unoccupied land between the road and the sea, and then one or two pensions, and about a quarter of a mile from the town the road crosses, by a stone bridge, the mouth of the second of the three torrents which find a vent near Mentone—the Borrigo torrent which issues from the broad valley of Borrigo, a favorite drive and promenade for invalids at the season of easterly winds.

From the bridge over this torrent the carriage road to Mentone divides, and we can either reach the town by keeping straight on, and passing behind a number of hotels and pensions, until we enter the main street proper; or else we can turn to the right and drive close by the sea, with the latter on our right and the houses on the left, along the Promenade du Midi, which is about half a mile long, and stretches nearly to the little harbour or port, beyond the centre of the old town. Whichever road we take, we have,

just before we enter Mentone, to cross, by a short suspension bridge, the third torrent—the River Carreï—which issues from the so-called Turin valley about a quarter of a mile from the shore, and flows in a south-easterly direction into the sea. The Turin Valley plays an important part in the formation of the climate of the West Bay—the name ordinarily given to the western suburb of Mentone—first, owing to the circulation of air which it permits, and, secondly, because its western and south-western slopes, as it widens out, protect the numerous hotels and villas which lie at their foot from easterly and north-easterly winds. To this point, however, I shall return later on. The central part of the parallelogram enclosed between the hills, the sea, and the Borrigo and Carreï torrents is mainly covered by lemon orchards, the edges, except on the north side where the railway station stands, being fringed with houses and gardens.

I may here say once for all that the railway, from Nice to Genoa, after piercing the ridge of Cape St Martin by a short tunnel, runs obliquely through the olive groves till it reaches the base of the sand hills above described. These it skirts, crossing the Borrigo valley by an iron bridge, until it reaches the railway station situated between the Borrigo and Carreï torrents. The latter torrent it crosses by a stone ridge and continues its course, still skirting the hills, to the spur on which the old town of Mentone is built. Entering the East Bay by a tunnel it follows the line of the shore at the back of the hotels and villas which fringe it, and fifty or sixty feet above the sea, as far as the Italian frontier.

Continuing our drive from the east side of the Carreï torrent, which is crossed by a rather rickety suspension bridge, on which, however, the Mentonese are said to lay great store, we enter what may be considered the town of Mentone proper. An avenue of plane trees, which in summer shades the road nearly the whole way from the Hôtel Pavillon to the town, is continued a short way into the town itself. Twenty years ago this avenue extended much further east, but the necessities of building, and the limited building space at the disposal of speculators, have compelled the authorities to reduce the length of the avenue on the east side. With the exception of two cross roads leading to the sea, and of two or three turnings which lead to by-streets, only one offshoot of importance leaves the high street before it enters the East Bay, namely, a carriage-road, which serves the hotels and villas on the western slope of the hills on the left bank of the Carreï torrent, and which takes foot passengers to the station. There is nothing particularly worthy of notice in passing through the western portion of the town of Mentone. The houses on either side are chiefly shops, though several hotels have their carriage entrance on the south side. The street is narrow, and only wide enough in some parts for two vehicles to pass one another. It is sunless, except in the early morning and late afternoon, and often very draughty, especially when the wind has an easterly direction. The paving, which was formerly very defective, has been much improved in the last year or two, and there is much greater attention to cleanliness than formerly. Pavements (*trottoirs*), which are narrow and uneven, are only to be found in the western and broader part of the Rue St Michel.

At three points the houses are interrupted by open spaces in the order named; on the left, opposite the Cercle Philharmonique (see later on), where there is a double colonnade leading into the square, with trees and seats, and a handsome kiosque, erected by subscription, for the band; on the right, at the back of the harbour, by an oblong space, the south side of which is formed by the Hôtel Bristol; and still further on, in the narrowest part of the street not far from the turning into the East Bay, by the small and shady market square, which lies at a lower level than the street.

The business part of the town is practically confined to the Rue St Michel, and all the essential necessities of invalids and visitors must be bought here. For healthy people this is of no importance, but for invalids on windy days, especially in the afternoon, shopping is not a desirable occupation. Generally speaking, the best thing an invalid can do in midwinter is to keep out of this street as much as possible. Unfortunately, as the Promenade du Midi is not continued in front of the whole length of the town, but stops short about 300 yards from the east end of the Rue St Michel, where the works for the harbour extension are being carried on, every one who has to go into the second suburb of Mentone—the East Bay, in which several of the oldest and best hotels are situated—must pass through the narrowest and most draughty portion of it. The East Bay, which we now enter, has a completely different character from the West Bay. The sea runs much further up into the land, so that the carriage-road skirts the shore in nearly a semicircle, instead of in a very shallow curve, as it does in the West Bay, and it is

squeezed in, so to speak, between the hills and the shore, so that on its inner side there is but scanty space left for houses, especially towards the west.

For centuries, in fact until the time of the first Napoleon, the only communication with the East Bay from the West was by the narrow street, called the Rue Longue, which debouches close to the eastern end of the Rue St Michel, and runs parallel to, and fifty or sixty feet above, the sea, along the eastern flank of the ridge which divides the two bays. Napoleon constructed an excellent carriage-road, now known as the Quai Bonaparte, supported by a seawall, immediately at the base of the old town, and continued it round the whole edge of the East Bay; it is to him, indeed, that the traveller of the present day owes the splendid Corniche Road, which joins France and Italy. Before 1811 Mentone, like many other places on the Riviera, was inaccessible by carriages, and could only be reached by sea, on foot, or on muleback. Even now the streets of the so-called "old town," piled up on the hill side and crowned by the Cathedral, are too narrow to admit a cart or carriage of any kind, and donkeys have been used for carrying heavy loads through them from time immemorial.

We may now enter into some details with regard to the East Bay. Owing to the nearness of the hills, which are only intersected towards the east by the insignificant valleys of St Jacques and of the Garavan streamlet, and owing to the fact that the eastern side of the Bay is protected by a huge mass of bare and precipitous mountain (the Berceau), which sends its spurs almost into the sea, the East Bay is unusually sheltered, perhaps more than any similar indentation

on the north shore of the Mediterranean. The temperature of this bay is also slightly higher (two or three degrees Fahr.) than that of the West, owing to the reflection of the sun's rays from the limestone rocks by day, and to the heat which they absorb by day and give out gradually at night. There is also less motion in the air on this side of Mentone, though at times the south-east wind makes itself felt pretty severely on the western side of the bay, especially at the turn of the road which leads into the town. According to Sigmund, the East Bay is decidedly damper than the West (l. c., 323). Although the East Bay has much to recommend it, owing to its picturesqueness and its sheltered situation, yet it has its drawbacks. In the first place, when the sun is shining brightly, the heat and the glare of the sea are very oppressive, and have a relaxing effect on many people. Then, the only level walk for invalids is by the side of the carriage-road, which is, except for a short time after rain, very dusty, and along which there is a good deal of traffic. Another drawback arises from the aspect of the parts of the bay in which the hotels are, namely, the western and central portion; for while the morning sun pours down with even too great fervency on them, the afternoon sun strikes the windows so obliquely as scarcely to enter the rooms; and, further, owing to the mass of houses belonging to the old town which form the boundary of the extreme western portion of the bay, and which rise immediately from the carriage-road on the steep side of the ridge between the two bays, the direct sunlight is completely cut off comparatively early in the afternoon in midwinter, and the buildings in the western part of the bay are in shade when the sun is

still shining brightly on those along its eastern shore. Lastly, nearly all the best hill excursions have to be commenced from the West Bay, and the railway station is also in the latter, so that in both cases invalids are compelled to pass through the cold and draughty town. In spite of these drawbacks, however, the East Bay suits some persons best, just as the West Bay does others. Where a warm, rather close, sheltered situation is necessary, the former is to be recommended ; and where free movement of air and a bracing climate are essential the latter. Those who, after trial, find either disagree, can in the first month or six weeks of the season easily change from one to the other. Later on in the middle of the season, when the hotels are full, good south rooms are not easy to find vacant.

The general aspect of the East Bay is remarkably striking and picturesque, especially when it is viewed from its western extremity or from the new mole which protects the harbour. The western side, as has already been mentioned, is a tangled mass of walls and roofs of various colours, and in the Italian style. From the end of the Quai Bonaparte the shore is fringed with hotels and villas, the most western of which are literally built against the side of the sand-rock, and are only separated from the sea by the carriage-road. Beyond the centre of the bay, however, the hills recede somewhat, and leave a narrow strip of alluvial land (including the districts of le Pian, or the Plain, and Garavan, *Gare-à-vent*), which is occupied by gardens, orange orchards, hotels, and scattered villas. To the extreme east of the bay the ground near the shore again takes an upward slope, though of a gentle character, and merges in the descending flanks of

the Berceau. This suburb of Mentone is called les Cuses, and is probably the warmest and most sheltered part of the Mentone coast. Of late years a number of villas and pensions have been built at les Cuses, and the tendency seems to be in favour of its further growth. There is no doubt that the sun shines much longer on this than on the other parts of the East Bay, and the warmth of its climate is attested by the great height to which the lemon groves are carried up the side of the mountain. Its aspect, south-south-west to south-west, is excellent, and it lies too far from the old town to be shaded by the latter in the afternoon. The great drawback to this quarter is its distance from the business part of the town, and from the railway station. Incidentally, I may remark that the fact of the railway station being in the West Bay has tended to divert the current of visitors from the east to the west side of Mentone. On my remarking to one of the principal hotel keepers that a small passenger station in the East Bay would be a great boon to that part of the district, he at once replied that the landlords of the West Bay hotels would vigorously oppose any attempt at its establishment. The lower slopes of the East Bay are thickly covered with orange, lemon, and olive orchards, and the contrast of the dark-green and silver-green foliage of these trees with the ruddy brown of the barren mountain side above has a very curious effect. The most eastern portion of the East Bay, as far as it concerns Mentone, is formed by the steep precipices of the *Rochers Rouges*, or Red Rocks, so called from the tint which the external layers of the limestone have acquired by weathering. Unfortunately large portions of these picturesque rocks—a

characteristic feature in the Mentone landscape—are being year by year blasted away for building purposes. It is in these rocks that waterworn caverns containing the bones of various animals, flint instruments, and, in one case, a human skeleton imbedded in calcareous deposit, have been found. A few hundred yards from the Red Rocks the carriage-road, which has hitherto skirted the shore, divides, a short portion being continued close to the sea until no further space is left for it by the rocks, while the other ascends to the Italian frontier, since 1861 formed by the precipitous gorge of St Louis, which it crosses at a height of more than 200 feet by a bridge of a single arch constructed during the first Empire.

The geology of Mentone and its neighbourhood is not one of great interest, at least competent authorities tell me so, for I have little personal acquaintance with the subject, and I am indebted to my friend, Mr. J. W. Lewis, Deputy Professor of Mineralogy at Cambridge, for the following short sketch of its main features.

A compact light-coloured limestone, of the Cretaceous period, containing but few fossils, and corresponding probably with the lower greensand, forms the substructure of the country from Nice to Albenga, and seems likewise to form the eastern side of the island of Corsica. The strata are much distorted, and appear at the surface at the Cape St Martin, the Red Rocks, Bordighera, and in the higher hills around Mentone and in many other places. At Mortola, about three miles to the east of the Italian frontier, this limestone is overlaid by one full of nummulites belonging to the Eocene period. This is

the blueish-grey rock quarried so largely for building purposes above the Pont St Louis.

The lower hills of Mentone consist of a loose and friable sandstone which contains no fossils, and whose age is doubtful, though it is believed to be an upper cretaceous formation. The village of Rocca-bruna is built on a conglomerate of the Pleiocene period, which must at one time have covered the whole district, as it reappears on Mont Belinda east of Mentone, and near the high road which descends to Ventimiglia beyond Mortola still further eastwards. Underlying this conglomerate is a thin bed of clay of the Pleiocene period.

The authorities on whom the above sketch is founded are :

De la Bèche, 'Trans. Geol. Soc.,' ser. 2, vol. iii; Prof. Percy, 'Quarterly Journ. Geol. Soc.,' 1855; Mr Davidson, 'Geol. Mag.,' 1869; Nièpce, 'Revue de Nice,' 1874, and several other scattered memoirs.

There is an interesting account of the nummulitic strata near Mortola, by Prof. Alex. Pagenstecher, of Heidelberg, in Stiege's 'Mentone und sein Klima,' p. 72, *et seq.*

That part of the meteorology of Mentone, which has been most carefully studied, relates to the temperature, and sufficient data have now been collected to enable a pretty accurate idea to be formed of the various possibilities which may be looked for in different seasons.

The first series of observations on temperature at Mentone was made by M. Jérôme de Monlêon during the years from 1818—1844 inclusive; but, as far as I can learn, the position of his instruments

in a court near the centre of the town was not a reliable one, and his statement that the thermometer only falls to 32° F. once in *ten* years raises one's suspicions immediately. I need not therefore further refer to his figures, except to say that he makes the minimum temperature of the above period 32° F. in 1827 and 1830, and the maximum 89° F. in 1840. From 1844 to 1851 there is a break, and a second set of observations was begun by M. Tonin de Bréa, lasting from 1851 to December, 1860. He divided the day into three equal periods of eight hours, and made one observation in each, namely, at 6 a.m., 2 p.m., and 10 p.m. The means obtained by this method are given by Dr Farina in his *brochure* 'Le Climat de Menton,' but I have not thought it necessary to insert it here.

From 1861—1863, Dr Farina, the worthy honorary physician to the town and hospital, followed M. de Bréa, and took three observations daily between sunrise and sunset, as well as the minimum of the night, and his results accorded very nearly with those of M. de Bréa. Unfortunately he was prevented by professional engagements from continuing them longer and a gap occurs, which from 1863—1866 was filled by the admirable observations of the late D. A. Freeman, Esq., F. M. S.,* which for completeness have never been surpassed.

From 1871—1873, Prof. Castillon, director of the municipal school made some very careful observations in accordance with instructions from the authorities at Paris, and since January 1874, Dr Farina has carried them on in the grounds of the Mentone Hospital in the East Bay, about eighty feet

* 'Proceedings of Meteorological Society' for June, 1866.

above the sea, using a Stevenson's stand for the thermometers. The complete set of his observations are regularly published each week during the winter season in one of the Mentone papers. They embrace the barometric pressure, the maxima and minima of the day, the relative humidity, the mean temperature of the day, the direction of the wind, state of the sky, and rainfall, if any.

In addition to the above-mentioned observations, careful ones have been taken since 1873, by my friend Mr J. B. Andrews, and in the meteorological table below, I have given his monthly means, and those of Mr D. A. Freeman as examples of West Bay temperatures, and those of Farina and Castillon, as representing temperatures in the East Bay. I believe all these observations are reliable, and those of Freeman and Andrews have the special advantage of being made by perfectly disinterested lay persons, entirely indifferent whether the mean temperature of Mentone turned out high or low, and only anxious to know what it really was. By the great kindness of Mr Andrews, who has freely supplied me with all data I have asked for, I am also enabled to give the mean maxima and mean minima for the period from 1873—1878, as well as the absolute maxima and minima for each winter month during that period—valuable aids in forming an opinion of the climate. The latter figures I have arranged in a separate table with those of Freeman for 1863—1865.

Meteorological table of monthly means for Mentone.

Authority and number of years.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.
Mean temperature.								
Freeman, 1863-66	62·2	57·2	51·7	49·2	50·3	51·5	58·6	63·1
Farina and Castillon, 1861-77 ...	65·3	55·3	50·55	49·9	50·6	53·9	58·7	65·76
Andrews, 1873-78	—	54·1	49·68	49·05	48·63	50·71	56·69	—
Mean maxima. Andrews, 1873-78...	—	61·91	58·01	57·51	57·39	59·38	65·25	—
Mean minima.								
Same	—	46·38	41·51	40·63	39·69	42·03	47·97	—
Mean daily range.								
Freeman, 1863-68	10·7	9·9	9·2	10·5	11·4	11·8	12·5	—
Barometer. Freeman, 1863-65...	29·84	29·91	30·06	30·03	29·86	29·71	30·01	—
Relative humidity.	2 yrs.	2 yrs.	2 yrs.	3 yrs.	3 yrs.	3 yrs.	3 yrs.	
Freeman	72	75	72	72	70	74	74	—
Rainfall. Freeman and Andrews, 1863-66 and 1873-78	5 yrs. 6·37	8 yrs. 3·73 3·475		8 yrs. 1·242	8 yrs. 1·45	8 yrs. 3·69	8 yrs. 3·293	4 yrs. 2·37
Highest fall in each month	13·52	6·94	7·93	2·17	3·26	6·83	6·80	3·90
Lowest fall in each month	1·55	1·05	0·12	0·03	0·31	0·33	0·09	1·68
Rainy days in corresponding period	8·0	10·1	7·25	5·1	5·66	9·55	9·33	11·0
Rainy days. De Brèa, 1851-60 ...	9·0	9·4	5·9	7·9	5·5	6·1	7·3	9·3
Very fine days. De Brèa, 1851-60 ...	16·1	15·4	19·5	17·3	16·3	17·7	15·3	15·4
Freeman & Stiege, 1863-68. Self, 1875-78	—	15·0	15·6	14·8	15·0	12·7	15·0	—
Calm days. Stiege, 1863-68	—	22	23	19	20	18	—	—
Windy days. Same	—	8	8	12	8	13	—	—

Table of monthly highest and lowest temperatures at Mentone.

Years.	October.		November.		December.		January.		February.		March.		April.		May.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1863 1864 1865 1873 FREEMAN.	—	—	70·0	46·0	64·0	43·0	57·0	33·0	62·5	31·5	65·0	43·0	71·5	42·5	75·0	54·0
	73·0	51·0	66·5	45·5	63·5	40·5	63·5	38·0	64·5	36·0	62·5	34·0	72·5	41·0	75·5	56·5
	79·8	54·0	66·6	47·0	60·8	37·5	60·2	44·2	71·6	44·2	65·8	41·7	68·0	44·5	73·0	53·0
	—	—	69·0	40·0	66·0	38·5	—	—	—	—	—	—	—	—	—	—
1874 1875 1876 1877 1878 ANDREWS.	—	—	77·0	41·0	64·5	33·0	60·0	36·0	60·5	34·0	63·5	38·0	75·0	49·0	—	—
	—	—	69·0	36·5	60·0	29·5	69·0	37·0	65·5	30·5	69·5	37·0	70·5	44·0	—	—
	—	—	68·0	33·0	67·0	33·5	68·0	29·0	65·0	28·5	66·0	31·0	75·5	39·5	—	—
	—	—	69·0	33·5	68·0	32·5	64·5	33·0	65·0	31·0	62·5	25·5	71·0	39·0	—	—
	—	—	—	—	—	—	64·0	29·0	64·0	30·0	68·0	31·0	71·0	33·5	—	—

A word as to the position of the instruments in each case. Freeman's thermometers were placed for one winter against the northern wall of his house, and during the two succeeding winters at some distance from the house in a Stevenson's screen. The height of his instruments above sea-level was about eighty feet. Of Farina's later observations I have already spoken (p. 269); how the instruments were placed in his earlier ones and in Castillon's I do not know. Andrews has a Stevenson's stand on a grass plot in a large garden, well removed from trees and buildings, about twenty feet above sea-level and a hundred yards from the sea itself, and he wishes me to state that his thermometers are in a more exposed situation than any others on the Riviera, or in Italy, as far as he knows, and he has taken some pains to obtain information about them. This fact, he thinks, must be taken into account in comparing his mean temperatures with those of other observers at Mentone and elsewhere.

Farina gives the mean monthly humidity as ranging from 67—85 during the year. For the winter months, Freeman assigns 73 as its mean value, (three years) and, for a longer period it probably does not exceed 70, but the range is considerable in certain seasons. Stiege, for example, from October 1863 to April 1864, found 96 the highest saturation, in December, and 16 the lowest, in December and January. He gives 83 as the mean for that season, and 68 for the next, from November 1864 to March 1865 inclusive. I have registered a humidity as low as 35 with Klingelfues's hygrometer on January 11th, 1878, but I doubt whether figures of 20, and still less of 16, often occur. Unfortunately my own

observations with the dry and wet bulb thermometers, have not been continued long enough for me to give a decided opinion on this point.

The rainfall at Mentone, as elsewhere on the coast, has not been much studied until lately, and I believe the statistics of Freeman and Andrews, embodied in the meteorological table, are the fullest that can be obtained. Andrews' means have never before been published. The period during which the rainfall has been actually measured, includes some of the driest and wettest years on record. The rainfall for 1878—1879 will be found in Appendix I at the end of the book. I have given two columns of the mean number of rainy days—De Bréa's ten years period from 1851—1860, and the eight years period between 1863 and 1878, corresponding to the rainfall means of Freeman and Andrews. De Bréa counted everything as a "rainy" day on which any rain little or much fell, so that possibly he includes some days when only a few drops, and not enough to measure fell, or he may, as seems most probable, have neglected days on which at least .01 inch could have been measured.

I find that the months with greatest rainfall do not exactly accord with those with most rainy days. The following table calculated for both identical periods (1863-66 and 1873-79) shows this. The month with greatest rainfall or most rainy days is on the left, the other months with smaller figures being placed in decreasing order, from left to right.

Highest.				Lowest.			
Rainfall,	Oct. ...	Nov. ...	Mar. ...	Dec. ...	Apr. ...	May ...	Feb. ... Jan.
Rainy } days }	May ...	Nov. ...	Mar. ...	Apr. ...	Oct. ...	Dec. ...	Feb. ... Jan

The position of October, so high in rainfall and so relatively low in number of rainy days is interesting. It shows that the October rains are "torrential," in short severe bursts.

The other items in the meteorological table, with the exception of winds and windy days, do not require any special discussion.

The Mentone coast is freely open to the south, south-west and south-east. The east wind proper is not felt except near the shore, as the inland districts are protected by the spurs of the Berceau already mentioned in the topographical description, and by Mount Belinda and the Rochers rouges. At all times the lateral valleys at a short distance from the town afford complete shelter from even a rough east wind. I have over and over again observed this fact with reference to the Turin Valley. The north-east wind is only felt, if very rough; but, as stated in the general meteorological chapter, it is not a common wind on the western Riviera. The north wind proper, finds no entrance into the Mentone amphitheatre, owing to the height of the surrounding mountains; it passes over them out to sea. The question has been raised whether Mentone suffers from the mistral. Dr Madden (l. c. p. 94) declares that "the author of a recent English work on Mentone tells us that the mistral is unknown in that favoured climate," but that he visited Mentone himself in March, and "was informed that it had been raging for some days previously." I do not know who it is that has denied the occurrence of the mistral at Mentone, but I do not intend to deny it myself. I wish, however, to put matters in their true light, and to show that it very seldom blows, comparatively speaking. For this

purpose I have during the last four winters carefully noted, as Dr de Valcourt long ago suggested should be done, the number of times in each month when there was a strong or even fresh wind from the north-west, north-north-west, or west, and I have arranged the results in the subjoined table.

Year.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	Remarks.
1875-76...	—	0	4	4	7	—	† only two days of any force * west only.
1876-77...	—	2	4	6	2	—	
1877-78...	3	6	4	8†	8	—	
1878-79...	6	4	5	9‡	4*	5	
Means ...	4·5	3	4·25	6·7	5·25	—	

I think these figures, whose accuracy I can vouch for, will dispose of the idea that the mistral, even in the widest sense, is a common wind at Mentone. As a fact, the wind must blow strong from the north-west or north-north-west to be felt at all. On the west-north-west and west, access is easier but still difficult, and true westerly winds are quite the exception in winter. The mistral proper (north-west) is most felt on the west slopes of the west bay; the east bay is scarcely touched by it, as I convinced myself last winter on a typical day, when the sea in the latter was found perfectly calm and smooth, although rough with "white horses" outside. I think we may sum up what can be said of the Mentone mistral in the words of a well-informed writer in the 'Queen' (September 28th, 1878). She says, "the mistral does occasionally blow, but chiefly along the shores, and it is always easy to find shelter from it in one of the many beautiful valleys."

‡ Cf., p. 205.

I think the south-east is, next to the north-east, the most disagreeable wind at Mentone when it blows with force. Of the general characteristics of this wind I have spoken in Chapter I (p. 16), and the statements there made, as to the prevalence of winds at certain seasons, apply equally to Mentone.

As to the climate as a whole, I may be excused for saying that I think it combines the best qualities of the Riviera. The late Mr Freeman (l. c. p. 181) speaks of it as "peculiarly agreeable, in consequence of the generally dry, fresh, and bracing character of the air, of the large amount of sunshine, and of the entire absence of fog." The writer in the 'Queen,' already quoted, referring to a previous article by "Forestiera" in that journal (September 14th, 1878), in which Mentone is said to be "kept in a perpetual state of humidity by the evaporation from the picturesque and beautiful lemon gardens," has the following remarks:—"As I do not see where the humidity could come from, even if it were desired to exist, I feel it almost unnecessary to protest that the air is clear, bright, and peculiarly sparkling and exciting. People generally are able to walk farther and to do more there than in other places in consequence, and I have even heard complaints of its being too exciting for very nervous people, and thereby producing sleeplessness. As to its being injurious to people in good health, the statement is absolutely without foundation. I state this on the authority of my own experience of several years, and of that of many friends."

I much prefer to quote the opinion of persons who are evidently entirely disinterested, than to give detailed reasons for my own preference for Mentone.

When it is known that a writer is personally connected with a place, his opinions are discounted, and anything he says, that is not absolutely disparaging, is called "puffing." For this reason, I shall leave the merits of the climate of Mentone alone, knowing well that its success as a health resort is not dependent on my advocacy.

Before dealing with the more social aspect of Mentone, I shall, as I have done in the case of Nice, give an outline of the prevailing diseases. I have treated of the diseases of the coast generally in Chapter III, but each health resort has its special interest to its own visitors; hence, and as Dr Farina has, in his work '*Menton sous le Rapport climatologique et médical*, 1875,' provided valuable material which cannot be ignored, I have, at the risk of slight repetition, introduced the following sketch, which I hope will not be found altogether uninteresting.

Epidemic diseases are rare at Mentone. Smallpox has occurred occasionally, for example, in the winter of 1849, in 1857, and in 1870. During the winter of 1877-78 there were a few cases in the old town, the disease having probably been imported from Marseilles, where there was a considerable epidemic. In the summer of 1878 many natives suffered. There have been three epidemics of measles since 1850; the first in 1857, the second in 1867, and the third in 1874; and, as elsewhere, each epidemic was closely associated with whooping-cough, two epidemics of measles having been preceded, and one followed by epidemics of this complaint. There has only been a single epidemic of scarlet fever in Dr Farina's time, viz. 1868, this disease being less frequent in the south of France, than the other exanthe-

mata ; and, as I have elsewhere said (p. 86), assuming a mild form when it appears. Mumps have been occasionally epidemic, but of a very mild character. There have been two epidemics of typhoid fever, the first in October, 1854, which lasted six months, with a mortality of 27, or $7\frac{1}{2}$ per cent., out of 373 cases ; the second in the end of September, 1855, after a very hot summer followed by abundant autumnal rains. This epidemic also lasted about six months ; 327 persons were attacked, and there were seventeen deaths, equal to a mortality of five per cent. Sporadic cases are, of course, met with occasionally at Mentone as elsewhere, but they are uncommon, and the fear of driving away their visitors by bad smells or defective drainage, about which English people, as a rule, are extremely keen and anxious, makes the hotel-keepers, ordinarily, very particular.

Under the titles of "*fièvres rhumatismales*" and "*fièvres intermittentes*" Dr Farina describes two forms of disease, which chiefly occur in summer and autumn, and are due to exposure of the body to sudden chills, especially after severe labour. The "*fièvre rhumatismale*," which we should probably call in England a severe feverish cold, begins abruptly with a temperature of nearly 104° F., and is accompanied with general soreness and depression, and with muscular, but never with articular, pains. This form seldom lasts more than a week, but it occasionally passes on into acute rheumatism. By "*fièvre intermittente*" Dr Farina understands a febrile condition with marked periodicity and amenable to quinine, but he denies that it depends on malarial infection, and regards it as the result of chill in persons who have been working all day in the heat

of the sun, and who sleep in their weary state in the open air exposed to the heavy dew, or else in badly built and insufficiently roofed houses. In proof of this he describes an epidemic which occurred in 1862 at Ste Agnès, a village which stands about 2000 feet above the sea to the north of Mentone. It was an unusually hot summer, and instead of returning to their houses during the harvest, the villagers remained all day and all night in the fields, which are several miles from the village on the mountain. The consequence was, that out of 600 inhabitants more than half were attacked. Naturally, this class of fever occurring as it does among the agricultural population mainly at a time of the year when foreigners are absent, has little importance as far as visitors are concerned, and I have entered into the subject chiefly because I think the existence of these fevers makes the feverish character which nearly all acute affections assume at Mentone less extraordinary. A simple catarrhal diarrhoea in a person of sound constitution may have a temperature of 103° , while in delicate persons some slight indiscretion, of which the cause cannot always be discovered, may, as I have more than once seen it, give rise to a severe rigor, with a temperature of 104° or higher. A few cases of real intermittent fever (malaria) have occurred in the neighbourhood of Mentone during the excavations of the railway to Genoa, and in one instance during the removal of part of the torrent bed in the Borrigo valley.

Among the diseases of the native population which deserve mention, from their bearing on the diseases of visitors, it is important to notice that facial neuralgia is very common, and Dr Farina attributes

this fact to the effects of the sun and to atmospheric changes. Cerebral congestion and apoplexy are not uncommon among the lower classes, owing to the combined effects of the climate and the abuse of spirits. According to the statistics of the Mentone hospital cerebral affections are rarest in the summer, and most common in the autumn. Passing on to the diseases of the pharynx and respiratory tract we may notice that acute tonsillitis is by no means uncommon, especially in spring, and it often goes on to suppuration. Diphtheria had not been seen at Mentone for twenty-three years until 1872, when about thirty-six cases occurred between December of that year and April 1873. The second epidemic occurred almost at the same period in the winter of 1873. Both the winters of 1872 and 1873 were more or less damp and cold, and diphtheria was prevalent along the whole coast of the Riviera in the direction of Genoa. Laryngitis is excessively rare at Mentone, but of late years there have been several fatal cases of croup. Bronchitis, under which term Dr Farina includes catarrh and influenza, is not unfrequent in winter and spring. Influenza (*la Grippe*) characterised by the presence of nasal and pulmonary catarrh, and accompanied with considerable prostration, is a not uncommon malady in the south of France, and, as it did in the winter of 1877—78, may assume the dimensions of an epidemic to which even the healthiest succumb. Pleurisy is not uncommon in the autumn and winter, and pneumonia and pleuro-pneumonia are the most frequent diseases of the lungs, though they are chiefly met with among field labourers and outdoor workmen, especially masons, who are much exposed to atmospheric changes. At Castellar, a

small village well known to Mentone visitors, standing about 1000 feet above the sea, and which has two parallel streets running north and south, pneumonia is of very frequent occurrence.

The question of the prevalence of phthisis among the inhabitants of Mentone is an important one for many reasons. Dr Bottini, who preceded Dr Farina, and who, some years ago, stated his own experience after many years practice in the town in his work '*Menton et son Climat*,' affirmed that there was only one death in forty-five from this disease among the Mentonese. Dr Farina's later experience agrees with Bottini's, and, as a striking proof of the view which he has been led to entertain by his observations in general practice, he produces the statistics of the hospital for the last twenty-five years, from which it appears that out of 3189 cases of all kinds admitted during that period there were only forty-five cases of phthisis, that is to say, the ratio of phthisis to other diseases was as 1 : 70·5.*

Turning now to diseases of the digestive organs, we find, as might be expected, that acute gastro-intestinal catarrh is not uncommon in summer, while chronic gastric catarrh is frequently met with among the working classes as the result of the abuse of wine and spirits. Catarrhal jaundice is sometimes met with during the great heat of summer. Dr Farina declares that he has only twice met with cirrhosis of the liver, but it is difficult to reconcile this statement with another in which he speaks of the dropsies and the cases of ascites met with among the drinking population. Albuminuria, except as a

* For some statistics of phthisical cases treated at Mentone, see p. 112.

complication with diseases of the heart, and diabetes are extremely rare. Dr Farina has only seen two cases of the latter among the Mentonese. Scrofula, which was five-and-twenty years ago extremely common at Mentone, is fast disappearing, owing to the greater prosperity of the district, and to the improvement in the houses of the peasants. Stone is very rare, as is also gout; on the other hand, acute and muscular rheumatism are common in summer and autumn. Erysipelas is often met with in summer among the masons and field labourers, and appears to be dependent on exposure to great heat. Catarrhal inflammation of the is are stated by Dr Farina to be of frequent occurrence, but this must be chiefly in summer, as it is not at all common to observe either children or adults thus affected during the winter season, and from my own observation I should say that corneal opacities, or loss of an eye from ulceration and perforation of the cornea, are excessively rare.

On the whole, the native population of Mentone is a very healthy one. Sickly children or adults are rarely met with, and there is a large proportion of old people among the inhabitants both of the town and the neighbouring villages.

I must now say a little about the choice of hotels at Mentone. Once for all, it must be stated that very many of these establishments are built very close to the sea, with only the promenade or roadway between it and them, or else with a small garden in addition in front of them. One of the consequences of this nearness to the sea is that at night, even in moderately calm weather, the noise of the tideless waves breaking monotonously on the same part of the beach is very disturbing. Some persons are kept

awake by it for many nights after they have settled into the hotel ; and the nuisance is worse in the East than in the West Bay, because the sound is there more confined. The glare of sunlight off the sea is also much felt in these hotels, but it can be obviated by closing the Venetian shutters, with which all the south windows are provided. One advantage of being near the sea certainly is that, taking one day with another, you get more warmth there than you do even a short distance inland ; another is that you can get out quickly on to a sheltered road, which is soon dry and passable even after rain. This is especially true of the West Bay. There is no doubt that there is a great predilection among visitors to Mentone for the neighbourhood of the sea ; whether it is good for invalids to live so close to it as many do, is another matter. The smells which one used often to encounter in walking along the Promenade du Midi, and also in the East Bay, and which arose from the discharge of open drains into the sea, have lately, owing to improved arrangements, almost disappeared.

I will now mention the names of the hotels near the sea, which the English most frequent, taking them in order from west to east. The most westerly is the Hôtel de Pavillon, already mentioned, which stands by itself a third of a mile from the other hotels. Then we have, on the Promenade du Midi, the Hôtel Westminster, and Grand Hôtel Victoria, both with gardens in front of them, the latter also having the great convenience of a lift to take persons up to the different floors. The Hôtel de Russie, Pension Americaine, Hôtel de Menton, Hôtel du Midi, and Hôtel Bristol, all in the West Bay and near the sea, are much frequented by foreigners. In

the East Bay we have first the Hôtel de la Grande Bretagne, built against the side of the hill, too close to the road to be pleasant to many people ; and then, on a rising ground about fifty feet above the sea, the small and comfortable Hôtels d'Italie and Belle Vue. These latter can be reached either by footpath from the road, or by a carriage road which branches off just to the east of the Hôtel des Anglais (*vide infra*), and bends round as it ascends till it runs parallel with the shore. This road, at present, stops abruptly at the north end of the Rue Longue, but it is to be hoped that it will eventually be prolonged westward through the old town, so as to form a second carriage communication between the two bays. Descending again to the shore, we have, not very far from the Hôtel de la Grande Bretagne and close to one of the English churches, the excellent Hôtel de la Paix, and next door the old and well-known Hôtel des Anglais standing slightly back from the road, with a small and carefully-kept garden. Still further on, we come to the Hôtel et Pension Santa Maria, and, last of all, to the Pension Beau Rivage, the Grand Hôtel, and the Hôtel Mirabeau ; the two last with fair-sized gardens.

The list of hotels which are built away from the sea is not a very long one. The Hôtel Splendide, a little out of the town in the West Bay, is scarcely far enough removed from the shore to come into this category, but stands about midway between the hotels near, and those quite away from the sea. These latter are all situated on rising ground under the western slopes of the Turin Valley. They have a south-south-west or south-west aspect, and get the sun nearly all day ; and the view from them includes,

besides the sea, the gardens, villas, and hillslopes, to the west of the town. They all have more or less garden attached, in which the flourishing vegetation attests the warm and genial character of the climate. This suburb of Mentone is coming into increasing favour with the numerous German families who now frequent the town, and there are reasons for thinking that many English who have formerly lived near the sea will for the future prefer it also.

The Hôtel de Turin, an old-established hotel, stands nearest the town, a little to the right of the Cercle Philharmonique ; then after an interval occupied by lemon gardens, the last probably but too soon doomed to disappear, comes the Hôtel d'Orient, and, afterwards, the small but well-managed Hôtel des Princes, and Hôtel de Venise. Higher still is the Hôtel du Louvre, with its *dépendence*, in a capital and well-sheltered garden. It is, however, almost entirely frequented by foreigners, chiefly Germans. All the hotels just enumerated, have the railway almost immediately at their back, but the highest hotels of all, the Hôtel des Îles Britanniques, and Hôtel National, lie immediately to the north of the railway, occupying the most commanding position in Mentone. The oldest of these, the Hôtel des Îles Britanniques, has a south-south-west aspect, and its north-west corner is close to the Turin Valley proper. The erection of this hotel, which has hitherto been unique in its situation, and which in comfort and good management leaves little to be desired, affords invalids an opportunity of testing the merits of a residence at Mentone away from the sea.

Its success has stimulated the construction of the Hôtel National, a little to the east of it and slightly

higher up, on ground formed by the removal of olive trees, and by extensive excavation of the hillside. Its aspect is nearly due south, it is extremely comfortable, and has been very well spoken of by visitors during its first season.

This enumeration of hotels may be completed by mentioning the names of two which are neither very close to, nor very far from, the shore. These are the Hôtel de la Méditerranée at the western end of the Rue St Michel, and the Hôtel du Parc in the Avenue de la Gare leading to the railway station on the right bank of the Carrèi torrent. A number of pensions, some of which are exclusively inhabited by Swedes, Danes, and Norwegians, need not be referred to by name; their prices are, however, lower than those of the first-class hotels, and people with limited means may be glad to know that such places exist. There are one or two pensions kept by English ladies exclusively for ladies, and of these, Miss Newland's Villa Faraldo, in the East Bay, is very highly spoken of. Her villa stands above and to the north of the railway, and quite away from the sea, and it has the advantage over almost every other house in the East Bay, of the shelter of a large olive wood in its rear, where invalids can find level walks and plenty of shade.

With regard to villa accommodation at Mentone, I may say that the number of villas has much increased in the last four or five years, and they are to be met with of all sizes. In the West Bay they are chiefly situated on the north side of the Nice road, and on either side of the Carrèi and Borrigo torrents, for some little distance up their respective valleys.

A number of villas have been built on either side of the mouth of the Borrigo and Turin valleys. It is

questionable, however, whether in all cases the best situation has been chosen for their erection, some of them being too near the bed of the torrent, and others, especially on the west side of the Turin Valley, so much under the hill as to lose the sun very early in the winter afternoons. A further objection to their position, is their exposure to the currents of air which traverse the valleys under the influence of the sea and land breeze.

A few villas have been built on rising ground from fifty to a hundred feet or more above sea-level. This is true of some of the newest, which stand a short distance behind the railway station.

In the East Bay there are good villas in the quarters of le Pian, and Garavan. As a rule the villas in all parts of Mentone are let furnished. The prices range from 1200 to 10,000 francs and upwards for the season; the average price for a house with five or six bed rooms and two sitting rooms, kitchen and servant's room being 4000 to 6000 francs. Furnished apartments in the town are difficult to meet with, and rather expensive, beside being on the second or third floor with very little, if any, view. The English grocer Willoughby, or the Agence Tonin Amarante, are the best people to apply to either for the hire of villas, or apartments. I need not enter further into this subject, but may pass on to speak a little about the external surroundings of the invalid at Mentone, and then a few words about his amusements. There are very good provision shops there, and most delicacies which a sick person might fancy can be bought pretty reasonably. All kinds of English groceries, biscuits, &c., are procurable in abundance, as well as wines and spirits. Tea is dear, and costs from five to eight francs a pound. Those who wish to enjoy

this beverage good, should bring their own tea with them from England, and even after payment of the Custom House duty (one franc per lb.) it will cost less than if they buy it at Mentone.

Game (pheasants, hares, woodcocks), as well as poultry, are generally abundant. There is a good fruit and vegetable market. Fish has become more plentiful since the railway was opened. The best fish comes from a distance—chiefly, I believe, from Havre, and the west coast of France. What is caught by the local fishermen consists mostly of sardines, and of these even the supply is very scanty. Invalids can get good milk, warm from the cow, at several of the Italian *laiteries* in and near the town: a pint costs from twenty to twenty-five centimes. Hotel milk is too often dear and watery. There are good chemist's shops with English dispensers, and they keep a good stock of the usual medical requisites, I think there is a general improvement in the Mentone shops in the last few years. More attention has been paid to their external appearance, so as to give an air of smartness to the thoroughfare, and those most recently opened are scarcely, if at all, inferior to their rivals of Cannes and Nice. As an admirable example of what an American would call a well-managed "dry goodsstore," the *Maison Modèle* of M. Pascal Amarante deserves a special mention. Few visitors to Mentone have not found their most varied wants supplied by the care and foresight of the proprietor. The town itself has not altered much of late years, with the exception of the erection of some new villas and other buildings, more especially in the direction of the railway-station.

In point of picturesqueness Mentone is somewhat

changing for the worse. New buildings involve clearing the ground of the olive and orange trees which are such a feature in the Mentone landscape, and on the hill sides there is also an increasing tendency to cut down the olives and to replace them by vines (which, of course, are leafless in winter) and by orange and lemon trees. Meanwhile, until the latter have grown up into respectable trees, the loss of the olives is very offensive to the eye, and it is not impossible that their removal may also injuriously affect the climate. Considering the numbers of strangers who make Mentone their abode for nearly half the year, and considering the vast sums which find their way into the pockets of the Mentonese, and into those of the hotel keepers, one cannot avoid the reflection that the Municipality does not do as much to make Mentone attractive as well as salubrious as it might. Fortunately there are signs of a real forward movement in this respect. In the first place, the old municipal council, which was exclusively in the hands of the Italian element among the Mentonese, has been, since the spring of 1878, replaced by a more active body, including one of the principal French doctors, and several leading hotel keepers. In the second place, a medical committee of the doctors of all nationalities who are legally qualified to practise in the town was organised, and held several sittings during the seasons 1877—78, 1878—79, under the presidency of Dr H. Bennet. At its earlier meetings the sanitary condition of the town and neighbourhood was carefully discussed, and a series of resolutions embodying the views of the committee as to necessary improvements was afterwards drawn up and communicated to the Mayor by a deputation of the members.

Although some of these suggestions were such that time would be required for their execution, yet immediate attention was paid by the authorities to a number of points, which, though apparently trivial, have an important bearing on the health and comfort of visitors. At present, however, there are still several grounds for complaint. The Promenade du Midi is still insufficiently supplied with seats, and none of those which are at present provided have any protection from the sun; some small pavilions, or summer-houses, roofed over and sheltered at the back, might also be advantageously placed here and there along the shore. Open seats are, on many days, too draughty for invalids. There is also no separate path for foot passengers on the promenade, and they are therefore at the mercy of the coachmen—a by no means too courteous clan.

The Promenade du Midi, though better looked after than formerly, is still not kept as neatly as it might be, and the beach in front of it is sometimes almost inaccessible to visitors, because of the multitudes of clothes which are hung out to dry along it at all hours of the day. The stunted aloes and shrubs which divide the road from the beach are also at times used as drying places for various male and female garments, mentionable and unmentionable. Besides the beach, the torrent-bed on the road to the railway at the mouth of the Turin Valley is also a drying ground, while the washerwomen themselves swarm by the side of every available pool of water in a way which must be seen to be believed. As things are at present I should think more than half the clothes in Mentone are washed or dried in public close to the Promenade du Midi.

On this subject urgent representations have been made by the medical committee and others to the authorities, and attempts were made last winter to stop the nuisance but without more than a partial success. The washerwomen expressed their willingness to dry their clothes elsewhere if a proper drying ground were provided for them. This idea, however, in view of the enormous price of land in the neighbourhood of the town, is scarcely likely to be carried out; but plans for a "*lavoir public*," or public washhouse, have been submitted to the municipal council, and will be probably executed during the present year (1879). The site of the *lavoir* will be in the Turin Valley, near the well-known "Three Mills," about a mile from the town. The question of water supply with which that of public clothes washing is intimately connected, is one which has been under serious consideration for several years, though up to March, 1879, no adequate solution of the difficulty had been found. Owing to the great height of the mountain wall which hems Mentone in, it is impossible to bring a water supply from the higher mountains on the north beyond the plain of Sospello without tunnelling for a long distance and at an enormous expense through the solid rock; hence the water must either come from within the Mentone district, or be brought along the seashore from some plain to the east or west. By the latter plan, the water of the Roya River at Ventimiglia might be made available. It is objected, however, that as the Roya is in Italy this supply might be entirely cut off in case of war between that country and France. Another proposal, that Mentone shall receive the surplus water which is to be brought from the Vésubie river by a canal

to Nice, to supply that town, has, I believe, been seriously entertained ; but it is more probable that the Municipality will first endeavour to provide sufficient water for the increasing needs of the town either from an abundant spring which is said to exist at the hamlet of Monti, in the Turin Valley, or else by boring a deep well near the shore. It is certain, from the experience of other wells, that large quantities of water can be thus procured. What is really wanted is decision to fix on one of the proposed plans, and energy to carry it out.

I feel confident that the existing water supply might be still further utilised by storing the surplus water which is now allowed to run to waste into the sea, and also by preventing its extensive pollution at certain seasons by the *débris* of the olive mills.

While, however, pointing out the direction in which new improvements are required, I must not forget to give the authorities credit for what they have already effected. Since 1876 the carriage road in the East Bay has been entirely provided with a parapet, the footpath has been nicely paved, and some extremely offensive smells near the Quai Bonaparte have been got rid of by carrying the contents of the previously open drains by pipes well into the sea. For this latter reform visitors are indebted to the untiring exertions of Dr Bennet. In the town itself the uneven worn-out paving has been replaced by new and well-made slabs, the street leading to the Post Office, which in 1875 was a public disgrace, is now clean and well paved, and the cleanliness of the main street generally has remarkably improved. In the West Bay a large sum of money was expended in 1877—78 in building a sea wall

beyond the Promenade du Midi westward, between the mouth of the Borrigo Torrent, and the western limit of the parish of Mentone, close to the Hôtel Pavillon, so as to allow of the prolongation of the carriage road along the beach. Owing, however, to some defects in its construction, and to the great violence of a storm in February, 1879, such serious gaps have been made in the wall as to prevent the completion of the road for the present. The worst part of the matter is, that a loan of about 40,000 francs, which would otherwise have been laid out on the general embellishment and improvement of the town and neighbourhood, will now be swallowed up in repairing what ought never to have required repair.

Of new inland carriage roads to be included in the list of "improvements," that which has been constructed in the most western of the Mentone valleys, the Gorbio Valley, must be mentioned. It will eventually, it is said, be carried up to the village of Gorbio, but at present stops about halfway. I am obliged to speak of this road as an improvement, but many persons who recollect the picturesque mule path which was lately the only means of ascending the valley, will regret with me the intrusion of Macadam. Quite recently the French Government has commenced a carriage road from Mentone to Castellar, a village on the heights to the east of the Turin Valley, and below the crags of the Berceau. If well engineered, and taken at a gentle gradient, it will open up quite a new district to many invalids. At present Castellar can only be reached on a donkey or by walking.

The last "improvement," on which the Mentonese pride themselves, is, the construction of a large sewer

the whole length of the Rue St Michel to the harbour, a work which was finished in 1877. I am glad to be able to state on the best authority, that this sewer only receives the surface rain water, and the "*eaux ménagères*," or house slops, but no sewage proper. It does not communicate with the house closets, as in England. The latter are on the cess-pool system, the night soil being pumped from time to time by a pneumatic arrangement into large iron barrels, just as in Paris, and conveyed away from the town. It is then sold to the peasants, who use it for manuring their orange and lemon orchards. The annoyance caused by this plan is probably much less than if the sewage were all discharged into the tideless sea, and at the same time the sewage is utilised in the most profitable manner. The reason for keeping closets disconnected from main sewers at Mentone, or generally in the south of France, is not far to seek. The rainfall, though not inconsiderable, is extremely intermittent, many weeks in some seasons, and even several months sometimes elapsing between each bout of stormy weather. Hence, with a general discharge of sewage into the drains, and an insufficient supply of water for flushing them apart from rain, the consequences could scarcely fail to be of the worst kind. At Naples, as I hear from my friend Prof. Borelli, the sewer system has failed badly, though owing to a rather different cause. The lower classes, with carelessness intensified by the influence of the climate, throw all sorts of rubbish into them, and this accumulates until the next heavy rain, when it blocks the sewer mouth, causes reflux of sewage into the houses, and so gives rise to typhoid fever. Something of the same sort would probably

happen at Mentone if our English sewer system were carried out there. Different climates require different arrangements to meet them. I believe the dry earth system might be largely adopted on the coast, and I know of one case in which it has been used with complete success.

The state of the carriage roads is not bad, but it might be better, and in and around the town the water-cart in dry seasons ought to be much more often seen than it is. For watering purposes, sea-water is always available. There is great need of a sheltered public garden at some little distance from the sea. The present Jardin Public is much too close to it, and in consequence, the trees and shrubs do not flourish as they might, while there are so many draughts from the absence of a sheltering wall that it is more often than not unfit for invalids to sit in. There is also a carriage road on three sides of it, so that there is no deficiency of dust. There cannot be a doubt that a new garden should be provided where visitors can sit and read or listen to the band without risk or discomfort. To remarks of this sort, the authorities are fond of answering, that they have no money to lay out in beautifying or improving Mentone, though they yearly vote 1000 francs (£40) towards the expenses of the Carnival, and have even mooted the idea of building a theatre.

In Germany, at nearly all the baths and health-resorts each visitor is charged a fixed sum, called the *Curtaxe*, or sometimes *Verschönerungs-tax*e (embellishment rate), towards the fund for keeping up the buildings, the roads and footpaths, and providing seats and other conveniences for the invalids and their friends. At Baden Baden, for example, the

Curtaxe is four shillings a month, for one person, ten for two, and twelve for three ; at Wiesbaden it is six shillings for one person, twelve for two or four, and eighteen for five or more persons. It is not necessary to multiply instances, but I think the system might, with advantage, be introduced at Mentone. A duty of say five francs per head per month, or twenty-five francs for the season, would raise a considerable sum in a short time, and the control of the latter should be entrusted to a committee on which the visitors should be represented by some of the permanent foreign residents, and of the medical men, and to which the hotel keepers should send delegates.

The various complaints formulated above, as to watering, the sluggishness of the authorities, etc., are not, I should say, peculiar to Mentone, but in some form or other are to be met with at every health resort on the coast. By their free expression in the papers and elsewhere, the force of public opinion makes its beneficial influence felt even in the south of Europe.

I have not much to say about the amusements of invalids. Those who visit Mentone for the first time will, if they are strong enough to get about, find abundance to interest them in the scenery around, and in observing the manners and the customs of the country. When the weather is fine and warm, excursions can be made in a carriage to Monaco, Bordighera, Mortola, Roccabruna, etc. Those who care for botany can add to the pleasure of their walks by collecting plants ; and there are many treasures to be found by careful searchers. The natural history of Mentone, as far as the winter flora is concerned, has been admirably illustrated and

described by the late Mr T. Traherne Moggridge, though I fear that the dissemination of knowledge as to the localities where certain rare plants are to be found among the visitors, has been the means of causing their speedier extirpation. Year by year, plants which were common ten or fifteen years ago become rarer and rarer. One fern, the sweet-scented *Cheilanthes*, has become very limited in its distribution, and the maidenhair fern is also being ruthlessly rooted out.*

Sketching in water-colours will well repay cultivation at Mentone, and, with due care in choosing warm days and sheltered spots, may be indulged in without danger.

There is a sufficient variety in the walks to satisfy even those who do not come for the first time, and few people can be insensible to the charms of the beautiful sea and sky, and to the constantly changing

* I would earnestly beg any visitors to the south, into whose hands this book may fall, when they pick the flowers, *not to dig up the roots*. The mania for church decoration which now exists is one cause of the wholesale destruction of fern and other roots on the Riviera. The church is decorated, the season which gives rise to it passes, and the roots are thrown away and die. It is easy to see that the supply must thus eventually be exhausted.

The wholesale destruction of the nests of some curious spiders, which make trapdoors, and which are found along the Riviera, is also strongly to be deprecated. At Mentone, not only are they an article of commerce which the children sell to the visitors, but they have been exposed for sale more than once at bazaars for charitable purposes. I remember the forlorn appearance of a wall where these nests abounded, and which I had long watched, when I visited it one day and found every nest cut out. Seeing that the adult spider does not always reconstruct its nest when destroyed, I cannot understand how persons, who consider themselves merciful, can sanction the wanton cruelty involved in robbing these harmless and most interesting creatures of the most essential part of their homes.

tints on the hills and mountains. A vast number of invalids, including nearly all the foreign ones, seem to think that all the benefits of a Mentone sojourn can be reaped by sitting in a chair and basking in the sun. As far as my own observation goes, both here and in other health resorts, the invalids who exercise their lungs and strengthen their muscles by moderate walking, especially by short excursions up the hills, do better, and make more decided progress than the sedentary sick. The rule is of course not absolute, but I feel convinced that many chest patients on the Riviera might take much more active exercise than they do. A place of amusement which invalids cannot be recommended to frequent is the gambling-house at Monte Carlo, between Mentone and Nice. Unfortunately, nature and art have combined to make it so attractive that too many Mentone visitors go there. Some concerts have been given during the last three seasons at the Casino on Thursday afternoons, nominally for the sake of the invalids at Nice and Mentone, but the room is often so crowded and hot that it is quite unfit for pulmonary patients to go there. If the directors are really in earnest, they should issue a limited number of tickets, so as to prevent a crowd. At present all seats are free, and of course every one tries to get in. Another objection to these concerts is that they are not over until half past four, and consequently in midwinter invalids do not reach home until after sunset. In the spring, however, this objection falls to the ground.

As to the gambling at Monte Carlo, the less said about it the better. It is quite time that the French Government put an end to the iniquitous proceedings of the Principality of Monaco ; but in reply to a recent

petition, it has declared itself unable to move in the matter.

The evils arising from the gambling establishment are by no means confined to Monaco itself, and both Nice and Mentone, and to a less extent Cannes and San Remo, suffer from its presence both in the class of unwelcome visitors which it attracts from all parts of Europe, and in the ruin it brings on respectable families, members of which are tempted to play and to go on until they have lost their all. Cases of this kind have occurred within my own knowledge. Suicides from gambling losses are by no means uncommon, though probably a large number are hushed up by the authorities of the gambling-house, and numbers of young men and others, who are induced to play without being absolutely ruined, lose quite enough, especially in their attempts to retrieve their first losses, to hamper them very considerably.

The public amusements provided for visitors at Mentone itself, are practically limited to a band which plays several times a week in the Jardin Public, in the East Bay, and in the square opposite the Cercle Philharmonique. The comfort of visitors is, however, much interfered with by the Mentonese loafers—a very numerous body, who get the best places near the band, and are as difficult to deal with as the most advanced Home Ruler.

An inner circle of chairs close to the band should certainly be railed off, and admission to this circle should be obtained either by ticket or payment of a small subscription for the season, or a few sous at the time of performance.

Gentlemen can become members of the Cercle Philharmonique or Club, without much difficulty, on

the introduction of two members. The subscription is not heavy, and the Society takes in the leading French and English journals and a few magazines, and in many ways helps to make the winter pass pleasantly by giving amateur dramatic performances, and *matinées dansantes*, and by liberally assisting in the organisation of the Carnival.

Those fond of reading can get plenty of English and foreign books in the Mentone lending libraries, but it is well for visitors to provide themselves with some *solid* literature before leaving England, as they will get chiefly works of fiction here, which, however, are enough for some minds. The English Book Club, however, can be relied on to supply a moderate demand for works of travel, biographies, &c. It is not easy to learn either French or Italian in Mentone; an unintelligible *patois* is almost universally spoken, and pure French and Italian are rarely heard.

Thanks to the exertions of my friend Mr J. Bruyn. Andrews, who has published a grammar and glossary of the dialect, philological visitors may spend part of their time, if it pleases them, in acquiring it; nothing delights a Mentonese peasant more than to be addressed in his own *patois*, and, owing to the rarity of the accomplishment, few things cause him more surprise. In the course of each winter several bazaars for charitable purposes are always held. An institution which claims the attention of the public in this way is Helvetia, a retreat for needy and delicate gentlewomen of any nationality, and situated in the East Bay. Each person pays the comparatively small weekly sum of one pound, which is supplemented by subscription, so that board and lodging are obtained for very little. One of the French

doctors also gives his valuable services. The expenses are naturally considerable, and subscriptions and donations are always thankfully received and certain to be well employed.

Helvetia is open only from November 1st to May 1st. Applications for admission should be made during the summer, and in all cases before September 20th. They must be accompanied by two certificates; one from a clergyman, stating that the applicant is not in a position to be able to afford the expense of an ordinary hotel or pension at Mentone, the other from a medical man, certifying, 1, that the applicant really requires a southern climate for the winter; and 2, that the general state of health of the applicant admits of a hope of a permanent cure, or, at the least, of decided amelioration. Subscriptions and applications for admission may be sent to M. Delapierre, pasteur, 16, Rue de Candolle, Geneva, during the summer; and after October 1st, to him at Mentone itself. Mrs Dudgeon, 30, Lancaster Gate, London (in summer), and Les Grottes, Mentone (from October 15th), will also gladly receive gifts or subscriptions.*

There are a Scotch Presbyterian, a French Protestant, a German Protestant, and two English churches at Mentone, besides the native Roman Catholic churches. The oldest English church—Christ Church—is in the East Bay; the other, St John's, is in the West Bay, near the public garden.

* A "House of Rest" for overworked clergymen and other professional men will be opened this winter at Mentone. The conditions of admission and the terms are the same as those for Helvetia. Applications should be sent to the Hon. Secretaries, the Rev. C. Wyatt Smith, Middleton House, Upper Tooting; or to the Rev. H. Sidebotham, St John's Parsonage, Mentone, who will also receive subscriptions and give all further information.

The daily life of a visitor to Mentone does not require a very elaborate description. As most invalids are impressed with the idea that they are to be out of doors as much as possible, whenever it is fine and the sun shines—which, the last few winters at least, has been a frequent occurrence—all but those who are seriously ill find their way into the open air. In the morning the hours of exercise are from ten to twelve or one o'clock; and in the afternoon the traditional time for getting indoors is about half-past three. After four only the healthy remain out. The most favourite mode of taking the air is, probably, that of walking by the sea on the Promenade du Midi, in the West Bay, which runs from east to west. This promenade, which has been already spoken of, is provided with a fair number of seats which face the sea, and are sheltered from any northerly breeze by the houses at their back. At the centre of the promenade is the small so-called Jardin Public, by no means adequate to the requirements of the town, but which affords some shade and protection from the sun in the hottest hours of the day; and the seats placed in it are therefore often occupied. The best time for walking by the sea is before the sea breeze springs up in the morning. A friend of mine, of great experience, considers the Promenade du Midi “the most catch-cold place for invalids,” and thinks sauntering or sitting about on olive terraces, or up the valleys much safer. In the afternoon the glare off the sea is sometimes rather unpleasant, so that some persons prefer to get more inland; and the walks in the Borrigo and Turin valleys are then more frequented.

A few years ago there were olive groves near

the sea, comparatively close to the town, the shade of which could be utilised by visitors, but now there is scarcely a trace left of them ; on the other hand, their place has been taken by gardens, which, of course, are not open to the general public.

Those who like driving will find at Mentone very comfortable one- and two-horse carriages, both open and closed, and the prices being regulated by tariff, are not exorbitant. A one-horse carriage cost 2 fr. 50 c. an hour, and a two-horse 3 fr. 50c. A simple drive from one part of Mentone to another costs 1 fr. 25c. for a one-horse carriage, which is equal to a shilling cab-fare in London. For long excursions an arrangement has generally to be made with the driver. There has been a great improvement in the matter of carriages, and also in the behaviour of the coachmen, since 1872. At that time the disorganisation left by the Franco-German war was felt even in the south, and owing to the want of sufficient police their license and outrageous demands exceeded all bounds.

The number of carriage drives at Mentone is, however, limited. In the East Bay visitors must either content themselves with driving along the shore from one bay to the other, which involves passing through the town, and incurring the risk of draught and cold shade, or ascend towards the Pont St Louis, where, however, owing to the neighbouring quarries and the perpetual passage of heavy stone waggons, the dust is generally several inches deep.

In the West Bay, besides the searoad, a favourite drive is through the olives beyond the Hôtel Pavillon to the Cape St Martin, the tour of which can be made in a carriage, though some parts of the road

are very narrow and uneven. The lower road, however, which skirts the east side as far as the southern point of the Cape, is kept in fairly good condition, and invalids would generally do better to keep to this and not to ascend the ridge. Another very beautiful though more fatiguing drive, is to the village of Roccabrun, overlooking the Bay of Monaco. Shorter excursions may be made up the valleys of Gorbio and Borrigo, and the whole length of the Turin Valley is traversed by an excellent carriage road, which is nearly level for the first two miles or more, and then ascends through the village of Monti, to the pass of Castiglione.

These three valleys are almost entirely sheltered from easterly winds. They are lined with orange, lemon, and olive orchards, but in the Borrigo Valley I regret to say that vines are being more and more cultivated, to the destruction of the shady olive groves and the ruin of the landscape.

Invalids who drive in open carriages require plenty of wraps, and they should carefully avoid days when there is much wind. When long drives are taken, it is very important to arrange so as to be home again before sundown. Those persons who can neither walk nor drive can hire very comfortable Bath chairs. For excursions up the hills, capital donkeys can be procured. These animals, being trained to carry wood and heavy loads to and from the neighbouring villages, are wonderfully surefooted, and if left to pick their own way will descend the roughest path with perfect safety to their riders. The donkey girls are generally very attentive and good tempered, and experienced visitors also learn to distinguish between the capabilities of the different donkeys, all of which

have high-sounding names, and to choose those which suits each best. In the spring, cavalcades of ten or a dozen donkeys are by no means rarely met with winding in single file up the mountain path. The charge for an animal for the day is 5 francs, and for half a day 2 francs 50 centimes, with a *douceur* for the attendant.

Boating is an amusement almost unknown at Mentone. I have never tried it myself, but I believe the difficulty of landing on the beach has something to do with the indifference of visitors to this healthy way of "taking the air." They can, however, land or embark without any difficulty at the harbour quay. The charges for boats are not high, according to quite recent and reliable information, and in calm weather the views of the coast from the sea are said to be charming. It is very remarkable that the idea of a landing pier carried far into the sea, such as is met with so often at English watering places, is unknown in the South of Europe. Want of capital, probably explains this and many other similar deficiencies.

The cost of living at Mentone has of late years increased much as it has elsewhere. Rents have risen, and Dr Siordet tells me that some have nearly doubled since he first settled there in 1861. Prices in the shops are also higher, and I am afraid also that the same prices are not always charged to temporary visitors as to residents. On the other hand, though in the most fashionable hotels the expense is considerable, there are several in which the *pension* is no higher than it was five years ago. I state this on the authority of the Rev H. Sidebotham, who gives me the names of the Hôtels Pavillon, Splendide, and des Princes in the West Bay, and of the Italie, Bellevue,

and Grand Hôtel in the East Bay, where people were lodged and boarded last season (1878-79) at from 8—11 francs a day. This applies also to most of the so-called pensions.

If the cost of living has increased at Mentone, the number of visitors has increased in a still more surprising manner, as the following figures will prove. In the season 1855-56 there were only 14 foreign families there at the fullest time—about March 15th ; in 1860-61 there were 98 ; in 1865-66, 439 ; and in 1868-69, 572. During the last ten seasons, the number of families present at or about March 15th has been as follows :

1869—70	.	.	.	594
1870—71	.	.	.	403 (Franco-Prussian war).
1871—72	.	.	.	1067 (Opening of railway).
1872—73	.	.	.	1098
1873—74	.	.	.	1112
1874—75	.	.	.	1293
1875—76	.	.	.	1433
1876—77	.	.	.	1498
1877—78	.	.	.	1331
1878—79	.	.	.	2180

The number of families of each principal nationality as furnished by the Agence Tonin Amarante for March 15th of the last four years, is given in the table on the next page.

Nationalities in alphabetical order.	Number of foreign families.			
	1876.	1877.	1878.	1879.
Americans	82	50	67	137
Austrians	51	55	52	55
Belgians	34	28	30	43
Danes	23	32	41	30
Dutch	31	35	30	45
English	621	481	543	839
French	262	245	252	459
Germans	196	195	141	241
Italians	17	12	10	34
Poles	42	21	15	28
Russians	141	106	69	164
Swedes and Norwegians .	27	22	28	46
Swiss	41	28	39	41

Commercially, Mentone chiefly depends on its lemon orchards, which probably exceed in extent and in their productiveness, those of all the rest of the coast put together. I have entered into full details on the culture of the lemon in Chapter II, and need not repeat what I have there said. Some slight idea, however, of the importance of the trade may be obtained from the fact that in 1872, the first lemon harvest (*première récolte*) produced thirty million fruit.

CHAPTER IX.

THE HEALTH RESORTS OF THE WESTERN ITALIAN RIVIERA.

NO. I.—BORDIGHERA.

I PROPOSE in this and the subsequent chapters of this book to give my readers the latest information I have been able to obtain about Italian health-resorts, and especially about some of those places on the Riviera, which, while they are well calculated to benefit those who can, and will do well to, go abroad in search of health, are, with the exception perhaps of San Remo, less well known than Cannes, Nice, and Mentone; and I give first a sketch of Bordighera as a health-resort.

This town, the most western health-station of the Italian Riviera, lies about three miles and a half from the Italian frontier at Ventimiglia. Its name is familiar to many persons who have never quitted England, for it is there that the novelist Ruffini has laid the scene of part of his admirable romance ‘*Doctor Antonio*.’ During the last seven or eight years Bordighera has been gradually gaining in favour as a winter residence for invalids, and hence a short account of it is essential in a work like the present, and cannot fail to be acceptable.

The town of Bordighera proper is of the same character, and apparently of much the same age, as most of the other coast towns. It consists of

houses closely packed together on an eminence to the east of what may be called the plain of Bordighera. It has the usual narrow streets, rather smelly, and not over clean, here and there arched over, or else buttressed across, so as to weld all the houses more or less into one mass. A church, and a square with a battered marble fountain, comprise its chief objects of interest.

If we take our stand just below the old town, where there is a terrace with a quaint wooden cross, with the carriage road at our feet, we can form a good idea of the general position of the place. To the south and to the left, and within a few minutes' walk, we have the open sea, and as we turn from left to right the eye ranges over palms and olives to the houses of the new town of Bordighera or Borgo Marina (of which more by-and-by) out to sea. Then, as we still turn, there meet us in the distance, if the day is clear, the faint outline of the coast from Toulon eastward to Cannes, then nearer in the west the bold Tête du Chien, above Monaco; nearer still we have the Mentone mountains, Cape Mortola, and the ridge on whose eastern slope Ventimiglia nestles, until at last, in the west-north-west, the eye is lost in the olive slopes which help to shelter New Bordighera from the northern winds. The near coast line as far as Ventimiglia is clearly visible.

The most striking feature of this view, putting the mountains out of consideration, is the enormous expanse of olive woods which lie stretched out between Bordighera and Ventimiglia. The whole plain to the west-north-west is a sea of olive trees. Nearer Bordighera palms are an occasional feature in the landscape; but the overwhelming mass of vege-

tation consists of olives. This view is probably almost unique in its way, and to it Bordighera owes much of its charm. It is, unfortunately, far from unlikely that many of these trees will before long be swept away, and their place taken by orange trees or vines. The petroleum trade in America has seriously damaged the sale of olive oil; and other causes, such as the failure of the crop on several recent occasions, and the greater profits obtained from vine-culture, are year by year tending to destroy numbers of venerable trees. At Mentone such destruction is in many parts a *fait accompli*; and I fear that the Bordighera district will also suffer.

If we now descend a little to an open space at the southern end of the point on which Old Bordighera stands, and turn with our faces to the east, the remainder of the near coast comes into view. From right to left we have the Capo Nero east of San Remo, the Capo Verde to its west, the latter olive-coloured promontory completely protecting the little bay of Ospedaletti, with its village on the shore, from the easterly winds. Then comes a nearer stony ridge, which projects slightly into the sea, and which is thinly studded with stunted pines, and the shore bends round towards the south, the hills retreating, and leaving a broad strip of sandy beach to blend with the promontory on which we stand. Without entering into further detail, I may say that the view on the western side of Bordighera is far more striking than that on the east; and as far as the existence of Bordighera as a health resort is concerned, it is only the district west of the old town and its cape which has any special interest. Descending among the olives from the old town in a south-south-westerly

direction, in less than ten minutes the eastern extremity of the straggling street which forms New Bordighera is reached. It runs from Cape Bordighera (on which stands the old town) at a short distance from the seashore, for about half a mile from south-east to north-west. A shingly beach, the railway (which skirts the shore throughout this part of the coast), and some strips of garden, separate the nearest houses from the sea.

There are shops of various kinds, including a chemist's and an English grocer's, to be found in the main street, which it should be noted is also the carriage road from Bordighera to Ventimiglia; and, where the houses get more and more isolated from each other by gardens and open ground, in the direction of Ventimiglia, we have on the sea side of the street the railway-station, and on the land side the two hotels of which at present Bordighera boasts—the south-eastern, opposite the station, the *Hôtel de Bordighera*; and the south-western, five minutes further on, the *Hôtel d'Angleterre*. To the north-north-east and east New Bordighera is sheltered by unbroken hills, which rise up about a quarter of a mile from the shore, and which are covered with olives and pines. Their height varies between about 400 and (at most) 1000 feet. At their base runs the remains of the old Roman road or *Via Aurelia*, which has lately been partly resuscitated and converted into a boulevard, and dense olive groves fill up the gap between them and New Bordighera. Here and there the red roof of a new villa stands out in strong contrast to the grey-green foliage, but the number of new houses is as yet small, though slowly on the increase. The position of New Bordi-

ghera is not the best that could have been chosen in a health point of view. The land on which the hotels and most of the houses stand is very little raised above the level of the sea, and in fact owes its existence to the gradual retreat of the latter southwards. Hence the ground is flat, though for reasons to be given later on good drainage is not as impossible as it would *à priori* appear. The present hotels are too near the sea for persons of a nervous temperament, as the noise of the waves and exciting character of the air prevent their sleeping. The sea breeze, which is at times rather rough, is also much more felt close to the shore than a little way inland; in fact, under the olives it may not be felt at all. For all these reasons it would have been much better to have built close to the foot of the northern hills, or even a little way up their slope; and now the new boulevard is nearly completed, it is probable that most of the future building will be carried out in the above situation. In reality the position of New Bordighera has been dictated rather by convenience than by sanitary considerations, the existence of the carriage road and of a nucleus of a few old houses near the shore having been the chief inducements to continue to build in the present situation rather than further inland.

I should mention that in the last year or two two or three avenues have been opened through the olives from the main road to the Via Aurelia. The most westerly of these, which debouches close to the Hôtel d'Angleterre, is called Via Bischoffsheim after the great Paris banker, who has a villa on the Via Aurelia, and who has bought up much land near the town for building purposes.

Turning now to the climate of Bordighera,* we find that it agrees in the main with that of most of the other health resorts of the Riviera, and that it may be classed among the mildest and most equable of these.

In one respect, however, its climate is very peculiar as Mr Hamilton points out. I shall quote from his notes. "All the other health resorts, Cannes, Nice, Mentone, San Remo, and even Alassio, the new place they are trying to start, are more or less at the bottom of bays. The situation of Bordighera is quite the reverse.

"It stands on a promontory which projects into the sea, more than any other headland in Liguria. Hence, it gets more sea air than any of the places already mentioned. The winds from north of east, round by south, to a little north of west, all necessarily blow from the sea. Live where you will in the neighbourhood, even seven or eight hundred yards from the shore and on the hills, you will still find yourself under the influence of the sea air, just as you would along the beach in the other health resorts. The effect of this circumstance on the vegetation is remarkable, and some curious botanical facts might be mentioned in connection with it. The result in a medical point of view, is obviously, that the climate of Bordighera should be advised only to those who may expect benefit from sea air. Such patients will have the advantage then of breathing the sea air

* For the meteorological and other statistics here quoted I am partly indebted to a little work recently published, entitled 'Bordighera in Gennaio, 1877, compilato da Federigo Hamilton.' Mr Hamilton has also most kindly furnished me with the data for the meteorological table below, and with some valuable notes with reference to the climate and general meteorology and geology of Bordighera, which, I am sure, my readers will appreciate as much as I do myself.

inland, (i.e.) without the inconvenience of the high winds, and the noise of the waves, which they would suffer from near the shore in other localities." It will be evident from my previous description of the town, that Mr Hamilton is thinking rather of the ideal Bordighera of the future, than of that of the present time. The bulk of the visitors as yet, have no choice to live elsewhere than comparatively near the sea.

The subject of winds is important in dealing with a place apparently so exposed as Bordighera.

The old town lies open to the east, south, and west ; but New Bordighera is to a considerable extent protected from the south-east and easterly winds by its position under the flank of Cape Bordighera. On the north it is almost completely protected, and the outlines of the Alpes Maritimes to the north-west and west break the force of the winds from those quarters. It may be doubted whether Bordighera does not suffer most from the south-east winds, and Dr Semeria, the resident Italian doctor of the parish, admits that the south-west winds (which, however, are warm and moist) sometimes blow with considerable violence. The size of the olives and the palms is, however, a sufficient proof that the climate is never severe. The orange and the lemon succeed very well at Bordighera, but at present so much ground is taken up by olives that the former are not cultivated nearly as largely as they might be. The capabilities of the climate will readily be appreciated by anyone who visits the garden of Signor Moreno, close to the old town, where a vast number of oriental and tropical plants flourish luxuriantly without any special protection.

Mr Hamilton writes me as follows with reference to winds :—" We do not suffer from them as much as is commonly supposed. When an observer at Mentone sees Bordighera shining so brightly at the end of its Cape, it strikes him as a very exposed and necessarily windy spot. However, it is really exposed only to the west, and westerly winds on this coast are generally light breezes accompanying fine weather. A gale from the south-west sometimes blows, but such gales are not frequent and never cold. The prevalent bad wind is the east wind, and from this all our vast western expanse of ground is sheltered by the Cape ; of course we do feel the east wind to a certain extent, but not more than Mentone, and much less than San Remo."

I think from my own inquiries, that the question may be summed up pretty accurately by saying, that at Bordighera, while the district near the sea is at times liable even to strong winds, shelter is readily obtained among the olives at the base of the hills a short distance inland, but those who expect to find Bordighera a very sheltered place, especially in spring, will be disappointed.

The mean temperature of the winter months for the four years from 1866 to 1870, according to Dr Semeria, the resident Italian doctor, is nearly as follows :—November, 55° Fahr. ; December, 53° ; January, 52° ; February, 52° ; March, 54° ; April, 57·5°.

Mr. Hamilton's means, with the absolute maxima and minima of each month of the same period, and the rainfall for 1879 are embodied in the accompanying table :

Bordighera. Meteorological table, 1876-79 (Hamilton).

	January.	February.	March.	April.	May.	October.	November.	December.
Mean monthly temperatures—								
1876.....	48.0	48.1	48.1	56.1	61.1	67.1	52.0	53.0
1877.....	53.0	50.0	52.0	55.1	58.1	60.0	61.1	50.0
1878.....	48.0	49.0	51.0	55.0	67.0	—	52.0	45.0
1879.....	49.6	49.6	51.0	54.15	58.0	—	—	—
Extreme temperatures—								
1876.....	Max. / Min. 57.2 37.4	Max. / Min. 59.0 37.4	Max. / Min. 60.8 35.6	Max. / Min. 68.0 44.6	Max. / Min. 73.4 48.2	Max. / Min. 80.6 53.6	Max. / Min. 68.0 35.6	Max. / Min. 64.4 41.0
1877.....	64.4 41.0	64.4 44.6	62.6 41.0	68.0 42.8	71.6 44.6	69.8 50.0	75.2 46.4	59.0 41.0
1878.....	61.0 30.0	63.0 49.0	68.0 51.0	79.0 55.0	82.0 67.0	—	79.0 37.0	61.0 25.0
1879.....	66.2 36.5	62.6 35.6	63.0 40.0	74.3 44.6	77.0 42.0	—	—	—
Rainfall in inches, 1879 only	1.40	3.365	6.0	8.31	7.84	—	—	—
Rainy days, same	9	10	10	17	16	—	—	—

His absolute minima are rather high, and require a word of explanation. They are accounted for by the position of his instruments : viz. under the roof of the tower or Belvedere of his Villa Pozzoforte, at a height of more than sixty feet from the ground. The thermometers are freely exposed to the north and to all winds, but direct radiation is prevented by the roof overhead ; this circumstance and the well-known fact, that up to a certain height from the ground the temperature of the air rises as you ascend, explain the high minima. The latter, however, accurately represent the general temperature of the air, though not that of the layer of air *in contact with the earth* itself, which is cooled on clear nights by the radiation from the latter. Mr Hamilton has published the minima in the Belvedere, and on the grass for nearly a month during the coldest period of the season, 1877-78, an unusually cold one on the Riviera. From these figures the difference between the two situations will be readily appreciated.

Minimum Night Temperatures (Fahr.)

1878.	Belvedere.	Grass.	1878.	Belvedere.	Grass.
January 14	38	23	January 28	34	26
" 15	40	24	" 29	43	36
" 16	40	28	" 30	36	28
" 17	41	26	" 31	30	26
" 18	40	28			
" 19	43	24	February 1	30	21
" 20	43	26	" 2	38	34
" 21	43	30	" 3	34	23
" 22	41	36	" 4	36	21
" 23	41	28	" 5	36	28
" 24	43	26	" 6	38	28
" 25	43	30	" 7	34	24
" 26	36	26	" 8	40	23
" 27	30	19	" 9	34	23

Mean difference, 11·6°.

I am unable to give any rainfall for Bordighera except during the present year (1879). Mr Hamilton writes me that "No rainfall figures have been published here, and I believe a raingauge has never existed in the place before," referring to one which he started in January last, chiefly at my instigation. He goes on to say, "I strongly suspect that it rains much less here (in any case, less often) than at all the other places along the coast. The peculiar position of Bordighera—projecting into the sea at the extremity of a ridge of mountains running up to the Alps—has the effect of dividing the currents of air, so that the rain-clouds pass to the east and west. We only get rain in regular wet weather from the east, and by storms from the west, but the rain which is brought by land winds from the mountains in places at the entrance of valleys, like Nice, *is unknown here.*"

I may observe, *en passant*, that as the tables show (see Appendix I) the number of days' rain at Bordighera since January 1st, 1879, has been quite equal to that at Mentone or Cannes, and the monthly fall on more than one occasion has been higher, but I think Mr Hamilton would have the best of the comparison in a long series of observations for the reasons he adduces. The average annual number of rainy days, according to Dr Semeria, is forty-five, but I feel sure that the mean has been calculated from too short a period of observation.

Snow and hail are of extremely rare occurrence, and, as at Mentone, the former melts almost immediately after it falls. The drinking water is excellent, and is partly brought down from the hills at Sasso by an aqueduct, and partly derived from springs.

The soil on which Bordighera and its new suburb are built "differs," Mr Hamilton says, "entirely from that of Nice and Mentone. The white limestone disappears between the frontier and Ventimiglia. East of the ridge upon which stands the ruin called the *Castel d'Appio*, there is no calcareous formation along the coast. The geology of the district consists exclusively in a badly formed blue sandstone, loose puddingstone, and great beds of blue fossiliferous clay (Pliocene). There is black limestone far below; it crops out a few miles up the mountains, and yields very excellent hydraulic lime."

"The surface of the great plain of the marina, west of Cape Bordighera, is a sandy clay; a mixture of sea-sand and clay washed down from the hills. This soil, which is extremely porous, rests upon a dense bed of shingle, the old beach, left as the sea retreated, which it is still doing at the rate of about a yard *per annum*. In digging foundations at seven or eight hundred mètres from the sea, I have myself met with the old beach (how old? not more than 2000 years), perfectly recognisable with the smell of the sea, the sand still salt, and abounding in shells, and containing pieces of crabs and other marine animals in a state of perfect preservation, and not fossil. The result of this state of things is that the ground is admirably drained; the rain-water sinks into it and goes to the level of the sea with wonderful rapidity."

The population of Bordighera with its surrounding hamlets exceeds 2500 inhabitants, and the statistics for the year 1876 give eighty-five as the total number of births, and forty-five as the total number of deaths. The latter figures are very striking, for

they indicate an annual death-rate of about one to fifty-six or fifty-seven individuals. As might be expected from this statement, the inhabitants of the Bordighera district are extremely healthy. There are no endemic diseases of any importance, and epidemic diseases are very rare. Smallpox and cholera have never yet reached Bordighera; and a small epidemic of typhoid fever, which occurred some years ago, was clearly traced to pollution of the drinking-water, and ceased on the repair and purification of the aqueduct. According to Dr Semeria, asthma, gout, and chronic rheumatism are very rare, and he has never met with a case of renal or vesical calculus, although he has the sole medical charge of the poor population. Among the diseases for which the climate of Bordighera is best suited are phthisis in its early stages, chronic bronchitis, laryngeal catarrh, pleurisy with retarded absorption of effusion, and chronic catarrh of the stomach and intestines. According to Dr Schmitz, of Neuenahr, who practises at Bordighera in the winter, the climate also suits diabetes, chronic gout, and Bright's disease extremely well. It is not adapted to cases of phthisis attended with much fever, or with a tendency to hæmorrhage; in any case such patients must carefully avoid the immediate neighbourhood of the sea. Bordighera suits phthisical patients of a lymphatic temperament the best. Patients of any kind of a nervous or excitable constitution find the air too stimulating. Mr Hamilton's remark already quoted (p. 313), as to the pervading influence of the sea air should be carefully remembered in prescribing a visit to it.

At present the amount of accommodation at Bordighera is limited, and it is calculated that there is

only room for about 250 visitors, exclusive of servants. There are three good pensions besides the hotels which have previously been mentioned—the Pension Anglaise, on the hill near the old town, and the Pensions Bellevue and Beau Rivage in New Bordighera.

The Bellevue is in the main street, to the east of the Grand Hotel, and is kept by Mrs Essarco, an Englishwoman, in spite of her name, and her niece. The rooms are clean and comfortable, though somewhat homely. The view in front is a little interfered with by an opposite house, but behind there is a small garden and a free expanse of olives. The *pension* is seven to eight francs for a long stay.

The Beau Rivage stands near the sea, and almost by itself, nearly half a mile to the west of the railway station. The *pension* ranges from seven to nine francs a day, and I learn from friends who have spent many weeks there this spring (1879) that it is very comfortable and quiet. It has the advantage of being near the walks in the valley of Borghetto.

In addition to the pensions there are about twenty private villas or houses which let furnished apartments, the whole number of these, I understand, being about thirty, large and small rooms. Some of the villas are the property of English people, one of whom, a lady, the proprietress of the Villa Rosa, has not only built, but endowed, a church in her grounds. Of the hotels, the older, Hôtel d'Angleterre, is close to the main street, and not very far from the sea. From personal experience I can say that it is well managed, and the proprietor, M. Lozeron, I have found extremely obliging. There is a comfortable salon, and a large dining room. The only drawback to

this hotel is its nearness to the carriage road, and consequent liability to noise and dust. The Hôtel de Bordighera, which is newer, is exactly opposite the railway station, and stands much further back from the sea than the Hôtel d'Angleterre, having a good-sized and exceedingly well-kept garden between it and the road. It is the larger of the two, and has three storeys, and two sidewings at right angles to the main building, but connected with it by glass passages in which people can walk during bad weather. The *pension* prices at both hotels range between ten and twelve francs per diem for board and room, according to the situation of the latter.

There can be very little doubt that, before long, either the existing hotels will be enlarged or others will spring up. For several years, in the spring, the demand for rooms has been quite unequal to the supply, and it has been no uncommon thing for visitors at a distance to have to wait many days for the promise of rooms; in fact, I have myself waited nearly a fortnight.

Bordighera is provided with plenty of well-supplied shops; more, indeed, than the present state of the place justifies. The winter resident will find whatever he wants almost as easily as at San Remo. The municipality seems anxious to do all in its power to beautify the new town, and prevent the erection of ugly buildings. A capital pavement has lately been laid on the south side of the main street, and the lighting of the latter at night has been adequately attended to. The presence of wealthy and liberal-minded proprietors, like MM. Bischoffsheim and Garnier, at Bordighera is a guarantee for future pro-

gress. Mr Hamilton has kindly furnished me with some notes of his on the possibilities of extension of the town on either side of the Cape, which find their proper place here. He says :

“The west side of Bordighera is evidently the quarter where the stranger’s colony will develop itself. It contains on the flat ground over 200 acres of building land, where the view from a first floor is glorious. The hills behind offer double the extent. I speak above of the plain to about a mile west of the cape, as far as the torrent of Borghetto, the limit of the communal territory. The same plain extends about two miles further to the right bank of the Nervia, near Ventimiglia, but as soon as you get under the influence of the cold valleys of Vallecrosia and Nervia, the situation is quite different. Further west, near the mouths of the rivers Nervia and Roya at Ventimiglia, the ground is marshy and there are a few cases of intermittent fever every summer.

“The other side of Bordighera (east) is occupied by a charming valley, rocky and sandy, full of palms and lemons, abundantly watered and prettily closed in by towering hills. It is extremely sheltered and hot, indeed, I daresay it is one of the warmest nooks in the South of Europe. However, but little building has been done there. No one seems to fancy the spot, probably because the cemetery stands in the centre of it, which is a drawback in most people’s eyes.

“About a mile and a half farther on to the east, lies the hamlet of La Ruota, on the pretty bay of that name. Here, there are two cold sulphurous springs, one above, the other below the road. The water escapes into the sea. It is often prescribed

by the local physicians. Appended is a copy of the only analysis of it which has ever been published.

Analysis of the Mineral Waters of La Ruota, by Mojon, chemist, at Genoa, in 1820.

Calcium sulphide	.	.	.	.	.	00,003
Calcium chloride	.	.	.	.	.	00,001
Sodium chloride	.	.	.	.	.	00,004
Calcium sulfo-carbonate	.	.	.	.	.	00,003
Water	.	.	.	.	.	09,989
						<hr/> 10,000

“The mass of mountains overhanging La Ruota, and which protect Bordighera so effectually from the north (Monte Nero, Caggio, and Bignone), formerly contained a volcano. The crater, however, is not now discernible, nor is there, as far as I know, any record of an eruption, but at a certain height above the mineral springs mentioned above, there are several fissures in the rocks which are called the *Ciotti fumosi* (smoking holes), and which emitted smoke within the memory of very old men. The existence of an active crater in these mountains is also proved by the presence of volcanic scoriæ which I have myself seen dug out of the ground in the neighbourhood. However, it was probably a very second-rate volcano, and of a mild character, as no traces of lava have been as yet discovered.”

Bordighera does not boast any of the amusements of a fashionable town. Living there is downright country life. At any rate, the neighbourhood is beautiful for excursions, and for those who are unable to walk, there are several good carriages attainable, but driving is only possible *with comfort* along the shore to the west and east of Cape Bordighera.

Near Ventimiglia a carriage road has lately been made for a couple of miles northwards into the valley of Borghetto ; but at present a drive along it can only be considered as a species of martyrdom. Still further west a better road, available for strong springs and persons used to bumping, runs up the picturesque valley of the Nervia, and the town of Dolce Acqua, a few miles inland, is a favourite place for excursions. Mr Hamilton tells me that any number of donkeys can be procured for riding up the hills, but visitors would do well to provide their own saddles. The pleasantest time for Bordighera is the spring, when the olive-ter-races are covered with abundant flowers. The botanist will be better off there than at most other places, owing to the great variety of plants which can be reached within an easy afternoon's walk. At present the flora is a rich one ; but, as at Mentone, the advancing tide of foreign colonisation will probably, before many years have elapsed, have nearly exterminated the rarest, and wrought havoc even among the commonest species.

The walks about Bordighera at present offer great advantages to invalids. Leaving their hotel or villa, they at once find a shady and level retreat under the olives ; or, if able to ascend the hills, they can do so without having to encounter any very steep ascents. For those who can walk well the country behind Bordighera affords abundant scope for their activity, and the old brown villages nestling in the olives are well worthy of a stranger's visit. On the whole, whether as a passing or a permanent winter residence, Bordighera has many claims to attention. For the class of cases mentioned above there can be little doubt that it is well adapted, as

well as for anæmic persons, or convalescents to whom sunlight and healthy air are the chief necessities. Remembering with Dr Semeria, "*Che climi perfetti non se ne danno*"—that is to say, that "An island valley of Avilion" has not been found,—those who do not expect too much of Bordighera, or any other southern health resort, will get on the best and be the least disappointed.

CHAPTER X.

THE HEALTH RESORTS OF THE WESTERN ITALIAN RIVIERA.

No. II—SAN REMO.

SAN REMO is a place that has wonderfully improved in many ways since its discovery as a health resort. In 1868, when I first visited it, the town itself was much in the same state as it has probably been for the last fifty or a hundred years, although signs of impending change were visible. To the east and west of the town, on the outskirts, two hotels had been recently built, and contained a fair number of English visitors; and there were half a dozen available villas. One or two shops for English groceries, and a small reading room, represented the chief provision for the comfort of visitors; and an English church was nearly completed. Since that time progress has been continuous. The municipal authorities have energetically striven to develop the resources of the town and neighbourhood, and the inhabitants have seconded their efforts in a most enlightened manner. Great transformations have been effected in the town, and the main street has been repaved, levelled, and extended westward, so as to be scarcely recognisable. The external appearance of the multitude of new shops, which now are capable of supplying nearly every want, is in no way inferior to that of the Mentone shops, and even rivals

those of Cannes. Instead of two, there are now nine or ten first-class hotels, while there are from sixty to seventy villas of various sizes, as well as several pensions, at the disposal of families or persons disliking hotel life.

San Remo lies about sixteen miles to the east of Mentone, and eleven from Ventimiglia, in $43^{\circ} 47' 56''$ north latitude, at the foot of an amphitheatre of hills, the highest of which, to the N.N.E., the Monte Bignone, has an altitude of very nearly 4000 feet. The hills have a comparatively gentle slope from below upwards, and are clothed with vegetation more or less completely to the summit, the olive being replaced in the higher regions by the pine. San Remo itself is built at the southern end of a ridge which runs almost due north and south. Beginning by a wide base along the seashore at almost equal distances from the promontories on the east and west, the Capo Verde and Capo Nero, which bound the amphitheatre of hills on the south, it gradually contracts as it ascends the hill in a triangular form, the apex of the figure being a church with dome and cupola—the Sanctuary—upon the hill, and the base, the harbour and the coast on either side. The houses which form the triangle are densely massed together, and with their various tints of ochre, brown, pink, grey, &c., present a most picturesque appearance when viewed from the shore; and the stranger who climbs up the steep brick-paved streets, or lanes, under arched passages and flying buttresses innumerable, will find many objects of interest in his ascent to repay the toil. The winter visitor finds it difficult to realise the need of such deep shade as he encounters in the old town of San Remo, but there can be no doubt

that the summer comfort of the inhabitants is greatly due to their contrivances for excluding the sun.

One reason for the number and strength of the buttresses is said to be the former occurrence of earthquakes, and after the evidence which Mr Hamilton has adduced as to the volcanic character of part of the district in the previous chapter (see p. 324), it looks as if there was some ground for the statement.

At the foot of the hill on which the old town is built, a long street, which is the continuation of the Corniche carriage road, bends round from north-east to west, so as to divide San Remo proper into a northern and southern district. The former, which is the larger, contains the poorer part of the town, the principal churches, the market-place, the chief shops, and the theatre ; while the latter is occupied by a number of detached houses, villas, and gardens, some of the old palatial residences of the Italian nobility, the new boulevard, which runs from the railway station to the sea, and the harbour, with its marine stores, its trees, its fort and mole—the latter curving round from south to west, so as to form a fair protection to the shallow anchoring ground. The main street, which thus divides San Remo, contains a number of the principal shops, the *cafés*, the post-office, and one or two hotels. The other shops are in one or two streets which run at right angles to it, and in some of the lower streets of the old town to the north. On either side of the old town a valley runs inland, that to the east being the most defined ; but on both sides these valleys slope up to the lower hills of the general amphitheatre, and come to an end completely under the shelter of the higher ranges. The entrance to the western valley is to a

considerable extent filled in by houses. The low hills which form its western side bend round and form a gentle slope, which runs parallel to, and at a short distance from, the sea, and is studded with villas embowered in foliage of various kinds—the olive, however, predominating.

In this part of San Remo the improvement since 1868 is wonderful. The railway station now stands near the shore and is connected with the harbour and with the main road to the latter by a broad boulevard ; and in order to conceal the railway itself, which is closely shut in between the sea and the carriage-road just to the west of the station, the carriage-road has been considerably raised, and carefully banked with masonry. On the sea side a broad and excellent pavement has also been laid down, separated by palm, eucalyptus, and other trees from the dusty carriage-road, and it has been carried on westward as far as the new public garden, or Giardino dell' imperatrice, almost opposite the Hôtel Bellevue. On this side of the town are some of the best hotels, the Royal, Bellevue, Palmieri, Londres, Paradis, and West-end. The latter, which is to the extreme west, was formerly Lady Kay-Shuttleworth's villa Ponente. None of them are far enough from the sea to be quite free from the noise of the waves ; and with the exception of the last they are fully exposed to the sea breeze and the south-east wind. Built at a short distance up the slope to the north of the main road, they have a good sea view, and they all have gardens of greater or less extent. The new Hôtel Palmieri is the nearest the sea, and the Hôtel Paradis is the highest up, and farthest from it. Beyond the outskirts of the town to the west the road follows the shore and winds

gradually round to the eastern side of the promontory of Capo Nero. Before it turns it is intersected by one or two small valleys or ravines. On the eastern side of San Remo, between the old town and the base of the Capo Verde, with its votive church of the Madonna della Guardia, there is a broad space of land between the sea and the Corniche road, which is nearly flat. On the north side, too, the hills come down with a much gentler slope than on the west, so that houses in this part have the double advantage for an invalid of being some way from the sea, and of not being perched up so high as to require a climb to get to them. On either side of the main road in this part (eastern suburb) there are a number of detached villas and hotels with their gardens. Among the latter may be mentioned the Hôtels de Nice, d'Angleterre, and Victoria, the latter of late years frequented by Germans. A new and fine hotel, the Méditerranée, was opened in October, 1877. Many of the villas in this quarter are of very convenient size. At Mentone there has been too great a tendency to build enormous villas, which can only be let at exorbitant rents; but their proprietors have suffered in consequence, as only very wealthy people can afford to take them, and they often remain unoccupied. At San Remo things have as yet been better managed, and I am told there is still an increasing demand for small houses.

The road to the east of San Remo, the Corso Garibaldi, is more sheltered than that on the west, and is planted with plane trees. The pavements on this side are also excellent, and extend throughout the inhabited district. Beyond the outskirts of the town the road runs through olive groves nearly due east at a distance

from the sea for about a mile, and then turns southwards to skirt the base of the promontory of the Capo Verde, close to the railway and the sea. On both sides of San Remo, but especially on the eastern, there are plenty of pleasant walks in the olive woods to the north, and that without the fatigue of steep ascents; and there are also sheltered spots in which the invalid can walk with safety when the east or south-east wind is blowing.

One drawback to the place is the absence of a sea walk near the town, for that to the west of the railway station can scarcely be called a promenade, and on the east side there is no walk at all near the sea within a moderate distance of the town. I hear the same complaints as to insufficient watering of the streets, exposed seats, and the absence of a *Curhaus* or large assembly hall at San Remo as elsewhere.

There are very few drives, except to Bordighera and Taggia, for there are no lateral valleys of sufficient consequence to require a carriage road. A new one is, however, now being constructed up the hills.

Numerous excursions, on foot and donkeyback, which it does not enter into the scope of this book to describe at length, can be made to the village of La Colla to the north-west, to San Romolo (how Romulus would have smiled at his brother Remus if he had known he was to be made a saint!), Taggia, —Ruffini's birthplace—Bade di Lucca, &c.

The cost of living at San Remo is much the same as at Mentone and Cannes. Since 1868 prices have risen as they have everywhere else, and I understand that last season some landlords would have been glad to lower them again. Some of the German doctors who have visited San Remo temporarily have published very bitter reports of the high prices, and in

some cases of the quality of the food supplied at the hotels ; and they have a right to speak out, considering that the German element forms nearly half the foreign population of the town in winter. The best English hotels last winter were the Bellevue and West-end on the west, and the Méditerranée on the east side, but they are all three said to be expensive. The old-established Londres has lately, I am sorry to say, had the reputation of charging heavily for extras—nine francs for a cup of beef tea.

At an hotel the *pension* ranges from ten or eleven to fifteen francs a day per head, according to the position of the rooms ; and wine, fuel, and lights are all extras. Furnished villas are let for the season at from 2000 to 10,000 francs and upwards, according to size. In the town, furnished single rooms may be taken for 40 to 100 francs per month, or a suite for 200 to 600 francs, but attendance and board are both extras, and in many cases the meals must be taken at a restaurant, a proceeding quite unsuited to the class of invalids who frequent the town. San Remo has enjoyed a good water-supply since 1828. The market is an excellent one, vegetables, butter, game, and meat being imported from Piedmont and other parts of Italy, while fish is caught at San Remo itself and at Bordighera. There is certainly no deficiency of creature comforts. There are plenty of carriages, and for the healthy who require "*distractions*" in the evening, a new theatre has been erected, at which an excellent opera company performs at certain seasons.

I have heard it whispered, however, that San Remo is rather dull, that dances and lawn tennis are hard to meet with, and that prayer meetings are

largely in vogue at some hotels. As far as invalids go, however, the former active amusements are probably by no means to be regretted.

The climate of San Remo is one of the mildest on the Riviera, and some authorities assert that, while closely resembling that of Mentone, it enjoys an even more equable temperature than the latter. According to the reports published by the Italian Minister of Agriculture, Industry, and Commerce, the mean temperatures from 1866 to 1874 for the four seasons were—winter, 49°, spring, 58°, summer, 73°, autumn, 62° Fahr.

According to the late Dr Dührssen, of Mentone ('*Deutsche Med. Wochenschrift*,' No. 6, 1876, s. 67), owing to the nearness of its projecting mountains, and to the greater height which they attain in the immediate neighbourhood of the town, the temperature in certain sheltered parts of Mentone is higher on *sunny* days in winter, and still more so in spring, than at San Remo; while, on the other hand, there are spots at the entrance of the Turin and Cabrol Valleys which the wind can reach, which have a colder climate than the best parts of San Remo.

On the whole, however, "The climatic differences between these two winter stations are so trifling that they need scarcely be considered in choosing one of them as a winter residence." With this view, which is also held by other good observers, I am in the main inclined to agree. San Remo is, if anything, more evenly sheltered on the north than Mentone, at any rate, than the west bay, and the prevalence of northerly currents is chiefly indicated by a general depression of temperature, the air being calm. In January, 1869, the temperature was indeed so low for

several days that the lemons seriously suffered, and the small streams in the neighbourhood, as I can personally testify, were frozen up. On January 23rd the thermometer fell to 26° in the night, and on January 24th there was ice an inch thick in the shade.

The figures in the following table are founded on the observations of my old and valued friend, Dr Henry Daubeny, of San Remo, and of the Royal Government Observatory, which existed in that town until the spring of 1878, and has since been transferred to Porto Maurizio. Neither set of statistics, for the use of both of which I am indebted to Dr Daubeny, is quite complete, but I do not know of any more perfect series. Dr Daubeny's observations for the years 1866-71 have not, I believe, been previously published. The Italian mean temperatures which have been used in calculating the monthly means, part of the figures for the rainy-day column, and the entire rainfall, have been taken directly from the ten-day reports of the Government observer. The mean range between 9 a.m. and 3 p.m. is alone taken from the '*Meteorologia Italiana, Osservazioni fatti nel settennio 1866-72,*' given by Mr Home Douglas in his often-quoted book '*Searches for Summer*' (p. 177).

Dr Daubeny's instruments were by Negretti and Zambra, and were placed outside the north wall of a house, six feet from the ground, and out of the range of reflected heat. The house stood about 300 yards inland and fifty feet above the sea. The Royal Observatory thermometers were placed about eighty feet above the sea, but I do not know exactly how they were arranged.

Meteorological table for San Remo.—Monthly means.

Authority and number of years.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.
Mean temperature. Daubeny and Government Observatory, 1863-78	6 yrs. 60·8	10 yrs. 54·4	49·75	12 yrs. 46·56	11 yrs. 48·9	51·1	10 yrs. 56·89	4 yrs. 63·1
Mean daily range. Daubeny, 1863-71	—	6 yrs. 11·6	10·2	12·1	13·9	14·08	6 yrs. 15·45	—
Mean range, 9 a.m.—3 p.m. Government Observatory, 1866-72 ...	4·0	5·8	5·2	5·0	4·6	3·6	3·7	2·9
Highest maximum. Daubeny, 1865-71	—	4 yrs. 69·0	68·0	61·0	71·0	69·0	76·0	}
Lowest minimum. Same	—	37·0	28·0	25·0	37·0	32·0	36·0	
Relative humidity. Daubeny, 1866-69	—	3 yrs. 66·0	69·7	66·2	70·0	67·7	67·6	
Days of bright sunshine. Daubeny, 1863-71	—	15·5	17·0	20·0	17·0	16·7	22·0	
Rainy days. Daubeny and Government Observatory, 1863-78 ...	—	9 yrs. 4·7 | 5·2	10 yrs. 3·4	9 yrs. 3·9	10 yrs. 5·8	9 yrs. 3·0	3 yrs. 4·6	
Royal Government Observatory—	Rainfall in inches by months.							
1874	3·60	0·31	5·25	1·84	1·79	0·55	1·92	4·18
1875	2·76	no re- turn	no re- turn	0·54	5·12	0·0	1·63	0·45
1876	no re- turn	5·07	4·86	No return.				
1877	1·31	12·13	0·10	1·36	0·08	6·95	3·89	3·20
1878	No return.			0·31	0·0	—	—	—

The only measurements of rain which I know of are the very imperfect ones given month by month at the end of the table. I hope some one will take this subject up, and give us a longer series.

The average annual number of rainy days, according to Dr Onetti ('*Le Climat de San Remo*,' 1876), is from forty to fifty, distributed as follows:—Autumn, 15 to 20; winter, 12 to 15; spring, 10 to 12; summer, 5 to 6. From October to April there are on an average thirty-five days on which rain falls, while at Mentone, according to De Bréa, there are fifty-one. If, however, less rain falls at San Remo than at Mentone, the nature of the soil is such as to retain the moisture longer at the former than the latter. Marly clay is the predominating soil at San Remo near the shore on both sides of the town, while the sand rock on which Mentone stands allows the rain water to percolate it rapidly. On this point Dr Dührssen expressed himself (l. c.) as follows:—"It seems to me improbable that San Remo is, geologically considered, drier than Mentone; for in my numerous walks among the hills at the former place, I frequently met with places in which the subsoil consisted of an impervious clay, whereas at Mentone it is generally readily percolable by water, and hence dries up much more quickly after storms than was the case at San Remo." The higher ranges of hills are limestone, and sandstone of various degrees of fineness is also not uncommon. In the tertiary deposits which are met with here and there is found a yellow clay of considerable value to the potter.

The absence of mist and snow is common to nearly the whole of the Riviera, and I need only note that

this holds true of San Remo. The snow, which falls on rare occasions, rapidly melts. The general character of the climate may be judged of by the statement that of 212 days from October 1st to April 30th, 83 are on the average clear, 87 partially clouded, and 42 overcast (35 of these being rainy); though, according to De Bréa, in the same period at Mentone there are 117 clear days, 28 partially clouded, 16 overcast, and 51 overcast with rain.

The winds from the east and south-east are those which are mostly felt at San Remo, particularly in March and April, the former especially being sometimes very rough and unpleasant. In December, 1868, I noted four days of easterly and three of south-easterly wind, and in January, 1869, eight days of easterly and four of north-easterly wind. The latter wind, or *Greco*, blows occasionally in winter, especially in November and January, with icy coldness, and (although some authorities endeavour to disguise the fact) the Mistral is by no means unknown, as, indeed, the conformation of the hills on the north-west would lead one *à priori* to expect. I have notes of it on three occasions in January, 1869; and I have been surprised, since I wrote this passage in 1877, at the frequent mention of the north-west wind in the reports of the Government Observatory, especially during the months of December, January, and February. According to Dührssen (*loc. cit.*), the Mistral blows with a force which is rare at Mentone; and Schulze, 'Die Klimatischen Curorte der Riviera, &c., 1875,' states, that in February and March, 1875, there were twenty-one days on which it blew with greater or less intensity. The south and south-west winds are often accompanied with rain, and

there are occasional south-westerly and westerly gales.

Dr Onetti gives a favorable report of the sanitary condition of the adult population of San Remo. He states that the average death-rate is 1 in 50, or 20 per 1000, and that not only is phthisis rare among the inhabitants, but that it never assumes the acute form, and usually runs a very protracted course. Dr Daubeny, however, found the death-rate in 1863 and 1864 1 in 41. The infant mortality is large, chiefly from diarrhoea in the hot weather. San Remo has a population of 12,000 people, and in the ten years (from 1864 to 1874) in the four parishes of Saint Siro, Les Anges, Saint Joseph, and Saint Donat de Verezzo, there were 2354 deaths, of which 1030 were in children under seven years, and 219 in people over eighty. Dr Onetti regards the climate of San Remo as tonic and stimulating, and especially adapted for cases of phthisis of a torpid character, for anæmic and scrofulous cases, for affections of the lungs and heart generally, and for acute and chronic rheumatism. My personal experience is unfavorable to San Remo as a place for rheumatic subjects, as I suffered from that complaint more or less the whole time I was there. Others, on the contrary, have had their rheumatism improved by a sojourn there. Dr Daubeny* admits that "rheumatic affections are occasionally met with amongst the labouring classes," but he ascribes them to "deficient clothing and exposure after excessive heat, caused by hard labour under the hot sun."

It may interest some members of the profession to know that close to the Sanctuary on the hill

* 'The Climate of San Remo.' Longmans, 1865, p. 16.

immediately behind San Remo there is a Leper Hospital of fifty beds, and liberally endowed. I visited it in 1868, when there were about thirty cases of true leprosy in various stages in the wards, among others a young man who had never been further away from San Remo than to Toulon, and whose grandmother, mother, and maternal aunt had all had the disease, though his father's side was free. In 1877 I was unfortunate enough to call at the hospital at a time when it was closed to visitors, but the porter informed me that the number of patients was gradually diminishing, and that they never had more than fourteen or eighteen in it now, though cases were admitted even from Nice and the French territory. The largest contingent is furnished by the villages among the mountains.

The commercial products of the San Remo district are chiefly olive oil, *vin du pays*, wood from the mountains, and lemons. The latter fruit is not grown so largely as it used to be, and its culture is chiefly restricted to the immediate neighbourhood of the town, and the parish of La Colla on the hillside, north-west of San Remo. In the time of Guistiniani, who wrote a history of Genoa in the year 1500, A.D., San Remo was a great place for the "*agrumi*," or members of the orange family. "*Il territorio di S. Remo*," he says, "*è tutto pieno di citroni, limoni, cedri, e aranzi.*"

Gallesio (l. c., p. 318) also speaks of the San Remese as those "*qui, de tout temps, ont pourvu de citrons, pour la Pâque, les Juifs de l'Italie, de la France, et de l'Allemagne. Les eaux de senteur et les essences n'ont été tirées pendant longtemps que de leurs pays, qui fournit encore maintenant à toute*

l'Europe l'acide citrique pour les arts, et une grande quantité de limons pour les tables; les différents fruits pour les confitures, et les oranges douces, ont été aussi, pendant dix siècles, un produit exclusif de ces belles vallées."

My inquiries at San Remo itself this year, as well as my own observations, lead me to think that in the cultivation of the "*agrumi*" San Remo has considerably fallen from its high estate since Gallesio wrote. Possibly the soil has to some extent become exhausted for this particular genus of plant, as for plants in general it seems extremely fertile.

There remains little for me to add about San Remo. As a health resort it is now, and justly, an established favourite. Its chief drawbacks are the clay soil, and the prevalence of easterly and south-easterly winds. Putting these aside, the indications for it are similar to those for all parts of the Riviera, where warmth in winter, sunlight, and pure air are the objects sought for.

In the late spring, from the middle of April onwards, I have no doubt, that, as Dr Daubeny says (l. c., p. 10), San Remo is cooler than Mentone in the afternoon, "as the sun disappears behind the western hills at an early period, and there is the absence of reflected heat" from the limestone rocks.

The rapid rise into public favour which San Remo has enjoyed, and the energy with which the authorities have exerted themselves to supply the needs of their foreign visitors, are strong arguments in favour of its still further development and success.

CHAPTER XI.

THE HEALTH RESORTS OF THE WESTERN ITALIAN RIVIERA.

NO. III.—ALASSIO, PEGLI, CORNIGLIANO.

THE following notes deal with some Italian watering-places which are in a much less advanced stage of development than Cannes, Mentone, or San Remo, and in some respects even than Bordighera. They ought not, however, to be passed over undescribed; not only because their climate differs in some respects from that of the places above named, but also because, at present, at any rate, they are slightly less expensive to live at than these latter. Moreover, owing to the opening of the railway, which now runs along the whole coast from the French frontier at Ventimiglia, a few miles east of Mentone, to Spezia, south-east of Genoa, the facilities for travelling are far greater than under the old system of conveyance by *diligence* or *vetturino*. Hence the number of northern visitors, valetudinarian and others, to the Riviera in winter is vastly greater than it was a few years back, and bids fair to continue to increase. Under these circumstances we need not be surprised if the railway along the north shore of the Mediterranean proves as powerful a stimulus to the progress of certain towns as it so often is in our own country.

Alassio, the first of the newer and smaller Italian

health resorts which I shall speak of, lies about fifty-six miles from Genoa, and thirty-eight from the Italian frontier at Ventimiglia. Its population is somewhat over 5000 inhabitants. It is situated at the northern extremity of a bay about five miles wide, whose main aspect is south-easterly, and which is more or less protected by a semi-circular range of hills running from south-east through north to about west-south-west. On the north-east, at the Capo di Santa Croce, and as far as the northern entrance of the town itself, the hills are nearest to the sea. Towards the centre of the bay, behind the town and beyond the railway station westward, they recede so as to leave a plain of some extent thickly covered with olives between them and the sea. Their height ranges from about 800 to 1500 feet on the average, and the highest point I can find marked in the Italian Ordnance map is 579 mètres (1881 feet) at Nostra Sanctità della Guardia on the north-west. The lower hills are olive clad throughout; the higher are covered nearly to the top with beech and oak woods and with pines. Here and there, half way up the slopes, the white summer villas of some Italian gentlemen stand prominently out against the green. Beyond Laigueglia—a small but very picturesque town, which lies close to the shore on the west side of the bay—the character of the hills, which terminate in the Capo delle Mele, is more barren and rugged. Compared with the houses in the East Bay at Mentone, Alassio is perhaps somewhat less shut in between the hills and the sea.

The geological formation of the hills appears to be clayslate of very compact character, and well adapted for building. Here and there there are veins

of quartz. The soil of the plain is a not very stiff clay, capable of ready cultivation and supporting fine olive and carouba trees, as well as orange and fig trees. The vine appears to be scarcely at all grown near Alassio itself, but it is met with abundantly, together with the mulberry, in the adjacent valley of Albenga, and it produces an excellent red wine, superior, I think, to the much-lauded North Italian wines Barbera and Barólo. The olive seems to be the tree on which the natives chiefly depend for their scanty income, and they hold it in considerable respect, expressing great surprise if any *forestiere*, or foreign settler, replaces it by ornamental trees like the eucalyptus, which bring, as they say, "no profit."

The town of Alassio proper, consists in the main of one long, narrow street, parallel to the shore, and only separated from it by the sandy beach. The street is entered at either end by a lofty gateway which forms part of the old town wall or rampart, which, until lately, surrounded the greater part of the town and the gardens at the back. This wall is no longer needed for defence, and interferes with the proper aëration of the town. Part of it has already been blasted away and removed, and the whole will probably in a few years disappear.

The one street of Alassio, though dark from the height of the houses on either side, is clean and well paved with stone. It is only broken at one point by the Piazza del Commercio, a small quadrangle on the sea side, near the centre of the town. There is room for a single carriage to drive through it comfortably, but barely space enough, except here and there, for two to pass one another. For large vehicles, a good

road skirts the back of the rampart just mentioned. There are plenty of shops, though their contents are but dimly seen in passing, owing to the Italian habit of excluding light as much as possible. There are two chemist's shops, but I could not convince myself that an English prescription was sure to be made up properly.

Good fish and vegetables are obtainable at, as yet, moderate prices, but poultry and meat—articles little consumed in Italian households, are more difficult to procure. This deficiency, however, is one easily remedied, seeing the enormous numbers of cattle that are brought along the railway from Lombardy for the French market, and the facilities offered by the railway for transport. The chief fish caught at Alassio are sardines, anchovies, whiting, red mullet, and John Dorys. Potatoes are largely cultivated in the plain of Albenga, and at Alassio itself tomatoes are grown for exportation in the preserved state to South America.

The water-supply is good, and the quality of the water itself is excellent, as far as I have been able to judge of it personally, and according to the testimony of reliable observers. The trade of the town is chiefly in olive oil, oranges, and preserved sardines and anchovies. There is a little ship building at times. Ropes are made there, and a kind of rough sail cloth. In the way of buildings of interest, there is nothing particular. The cathedral, however, has an elegant campanile, and a fine piazza paved with rough pebble mosaic in front of it, and as usual, there are several churches, the best features of which are—and I am sure Mr Haweis would agree with me—the bells. The general aspect of the houses of Alassio seen *en masse*

from a little distance, is rather mournful, owing to the cold grey colour of their walls and roofs. No doubt such neutral-tinted slates are cooler in summer than the red tiles with which one is familiar in the French coast towns, but speaking for myself I prefer a little more warmth.

The old town of Alassio is never likely to be much frequented or inhabited by foreigners. There is not light and air enough, at any rate for the English, and the houses are too near the sea. The authorities would do well from time to time, as they can afford it, to break the monotony of the street by taking away a few houses here and there on the sea side, and if possible, by throwing back part of the west block. In making recommendations of this kind, however, we must remember that northern and southern ideas are different; that while we think of winter they provide against the summer, and that it is easier to bear the comparatively slight cold of the southern winter than the severity of its midsummer sun.

As far as visitors are concerned, the future of Alassio must, I think, depend on the development of the suburb of Coscia to the north of the town, where the bend of the hills to the south-east give their slopes a more distinctly southern aspect than in any other part of the bay within a moderate distance of the sea. There are already a few good villas on the sea side of the carriage road to Albenga, but they are very near the sea and the approach to them from the town by the narrow road is a bad one. There are good sites north-east of the railway a little up the hill, more sheltered, and with a better view than near the shore, and it will be probably found that the greatest development of the *Alassio dei Forestieri*

will be here. A few English families have already found themselves nests among the olives behind the town, and the rapidity with which the young trees of various species, and which have been only planted a couple of years, have made growth in the grounds of my friend Mr Gibb, at Casa Cappone, is a sure evidence, not only that the position is a mild one, but that the soil is fertile.

There are, as yet, only two hotels available for the accommodation of visitors at Alassio, the Grand Hôtel, *ci-devant* Hôtel de Londres, a little to the north-east of the town, and the Hôtel de Rome on the south-west side, and also outside the walls. A third inn—the Hôtel de Londres—in the main street of the town itself is scarcely to be recommended to invalids, though strong people who can stand a little roughing it—bachelors, artists, or walking tourists—may find at any rate a clean and, I believe, a comfortable lodging there. The principal drawbacks to it are that there are no rooms on the ground floor, only two on the *entresol*, and that there is a general absence of fireplaces. One of the public rooms is hung with old tapestry and has some antique furniture in it.

The Grand Hôtel, the only one which may claim to be of *premier ordre*, though even that may be going a little too far, consists of a body which formed part of the old Hôtel de Londres and two newly erected wings. It has a broad tiled terrace on the first floor for the whole length of the sea front. On the ground floor there are a *salle à manger*, *salon de lecture*, and ballroom, as well as a suite of bathrooms supplied with sea water and well arranged. I noticed plenty of newspapers in the reading-room when visit-

ing it. The bed rooms are of fair size and have fireplaces. Those on the second floor struck me as the best. The aspect is south-east. The drawbacks to the hotel are its nearness to the sea, of which some people complain bitterly, the want of a garden, and its being lighted with gas. Some persons may smile at the third objection, but I found it on the impossibility of getting properly ventilated public rooms where gas is burnt and on the harm I am constantly seeing it do to invalids abroad. I may say that friends of my own who have stayed at the Grand Hôtel lately tell me they found it comfortable. The *pension* is from about ten to twelve francs per diem.

The Hôtel de Rome, at the outskirts of the western suburb of Alassio, Barusso, is quite half a mile from the railway station. It is rather further back from the sea than the Grand Hôtel, and has an aspect south-east by east. The high road runs between it and the beach. At the back there is a very large garden, in which stands the villa of the proprietor, and which is at the disposal of visitors. From the north-east windows there is a fine view of Alassio, with its seminary and church, and behind one looks on the whole semicircle of hills which shut in the bay on the north-west. From this point we get a good idea of the regular conformation of the ridge of the hills, and of the absence of any deep indentations. Against the slope of the hills, about two miles inland, lies the village of Moglie. The area of the bay is too small for the hills to send down a stream of any size to the sea.

The hotel itself, only opened last year, 1878, consists of two storeys. The rooms, though somewhat small, are cheerful and clean, and there are good

corridors. None of the rooms have balconies. There is a small cosy *salon* and an airy *salle à manger*. I noticed that the closets were not kept as well as they might be, and complaints have been made to me by visitors that when the house was shut up at night there was an unpleasant smell. I mention this in the interest of the public. The English chaplain was last winter at the Hôtel de Rome, and in consequence a good many English people stayed there. One case of excessive charging on the part of the landlady has come to my notice, but she has been warned that that kind of thing will only injure her hotel, and it is not likely that she will "try it on" again. The *pension* for next winter, 1879—80, is to be 7—8 francs a day *without* wine. This, I think, considering that Alassio is as yet a cheap place, is scarcely liberal. On the whole, the Hôtel de Rome, though less accessible than the Grand Hôtel, is more countrified. It is, however, probably more exposed, not only to easterly winds, but to those from the north-west. Some persons complain of the smells from the soap-works in the suburb of Coscia, but I do not think that need be a drawback to the hotel. I shall not further discuss the respective merits of the two establishments, but I will offer a word of advice to their proprietors, which may not be out of place. There is no doubt that the future prosperity of Alassio, which I hope may be great, depends very much on their wisdom in keeping prices moderate and abstaining from the rapacity of similar individuals further west. If the prices are assimilated forthwith to those of the Grand Hôtel du Louvre at Paris or Marseilles, or to those of the older watering places, like Cannes and Nice, while nothing to correspond

is offered in the way of comfort or attractions, Alassio will deservedly fail to develop. *Festina lente* should be the motto of Alassio for some years to come.

Dr Schneer, an Austrian physician, who has practised for about five years among the inhabitants of the town and district, has, with great kindness, furnished me with the results of his observations on the climate. They are embodied in the following remarks, and I here take the opportunity of expressing my best thanks to him for his courtesy in responding to my request for information.

The inhabitants of Alassio, as a rule, enjoy excellent health, and this I can well believe, judging from the opportunity which their habit of sitting at their doors and working affords of seeing large numbers of them, in passing through the streets. The mortality on the average of ten years from 1866—1876 was 18 per 1000. There is no fever, and epidemic diseases are rare; hereditary phthisis, however, occurs in certain families. Bronchial catarrh is not uncommon in winter, owing to the absence of proper warming apparatus, and to the use of tiled floors and too thin clothing. Pneumonia is rare. In the hot weather diarrhoea is common. Acute rheumatism with consecutive heart-disease seldom occurs, and kidney diseases are also rare.

The following table gives the mean temperature for three years for the winter months, and the *maxima* and *minima* mean temperatures for each month. The thermometer had a north aspect in shade. The hours of observation were 8 a.m., 2 p.m., and 10 p.m. Unfortunately all the readings were not made at the same part of the town, and there is some reason

for believing that all the means are somewhat too high.*

The figures are converted into degrees Fahrenheit from the Centigrade scale which Dr Schmeer used.

	Mean day temperatures.		Maximum.		Minimum.
January . .	48·5°	...	59·0°	...	27·0°
February . .	50·0	...	68·0	...	28·2
March . .	56·3	...	71·9	...	29·6
April . .	57·3	...	73·5	...	26·8
May . .	62·5	...	84·0	...	44·4
October . .	62·5	...	80·0	...	32·5
November . .	53·3	...	74·8	...	32·0
December . .	51·4	...	65·6	...	28·4

The mean barometric pressure for the whole year is 761·67 millimètres. The mean pressure for each month is given below :

January	764·10	July	760·75
February	766·20	August	760·20
March.....	759·00	September	761·30
April	762·00	October	761·00
May	761·80	November	761·20
June	761·00	December	761·40

* The table in Dr Schmeer's pamphlet, 'Alassio ed il suo Clima,' p. 74, published since my account of Alassio appeared in the 'Medical Times and Gazette,' in 1877, in which the mean monthly temperatures of San Remo, Mentone, Nice, and Cannes are compared with those of Alassio, is, I am sorry to say, utterly worthless and misleading; neither the years compared, nor the hours of observation, agree in a single instance. For Mentone Dr Schmeer takes an observation by De Bréa at 6 a.m. as equivalent to one at Alassio at 8 a.m.! In the third part of the English translation of the same pamphlet an air of great scientific knowledge has been imparted to the meteorological chapter by introducing whole passages from Dr Thilenius's work on Nervi (*vide* Chapter XII) *verbatim*, without the slightest acknowledgment.

Observations as to the average number of rainy days during the winter months have not been extended over a sufficient number of years to be of any value. Dr Schneer makes out that there are only twenty-nine wet days from October to April inclusive. I am sure that the season of 1878—79 will sadly upset his statistics. No rainfall has as yet been measured at Alassio as far as I can learn.

Alassio and the neighbouring coast are fully exposed to the east, south-east, and south-south-east, and fairly sheltered from the south, south-west, west, and north-west winds. The *Greco* or north-east wind occasionally blows with great force. The north wind proper (*tramontana*) is not felt close under the hills, but the district near the shore in which the town lies does not escape it, owing to the comparative lowness of the hills. I am sure that invalids who expect to find in Alassio a place as warm in winter, say, as San Remo, will be disappointed.

On the whole, however, I have no doubt whatever of the salubrity of Alassio, probably owing to which Alassio has been selected as the site of a large seminary or college for Italian boys, the fine new buildings of which are an ornament to the town.

The cost of living at Alassio is as yet moderate, judging from the market prices. The inhabitants, it should be stated, are civil, cleanly, and respectable, and ready to do all that they can to oblige strangers.

The scenery in the neighbourhood is very picturesque, and there are pleasant walks, with well-paved causeways, by which the hills can be ascended by tolerably able-bodied people without difficulty. The view over the plain and bay looking west towards Laigueglia is by no means a common one,

and the curious island of Gallinaria just outside the bay to the east cannot fail to attract attention. Moreover, the neighbouring town of Albenga, with its quaint brick towers, and its baptistery, will repay many a visit.

There are drives along the coast eastward to Loano and Cereale, quaint Italian towns, and also northwards from Albenga into the beautiful valley of the Ceuta with its ruddy hills.

I ought not, before leaving the subject of Alassio, to forget to mention that there were an English medical man and an English chaplain there last season.

Between Alassio and Genoa there are two other places which are more or less frequented by English visitors in winter and spring—Pegli and Cornigliano; the former about half an hour distant by rail from Genoa, and the latter still nearer. I shall say a few words about each.

Pegli is built on the sea shore, with a southern aspect; it is a town of about 4000 inhabitants, whose chief employment is fishing and shipbuilding, though I hear that, probably owing to the general depression in trade, the latter industry has much diminished within the last two or three years.

The interest of Pegli for visitors concentrates itself chiefly on the beautiful gardens which are attached to the villas of several Italian noblemen behind the town, under the shelter of the northern hills, which are comparatively near, and range up to 700 or 800 feet. The garden of the Villa Pallavicini is justly celebrated, and probably is unique in its extent and in the admirable way in which every part of it is kept up. Here all kinds of delicate plants

and tropical trees grow in the open air, and the number and variety of palms, aloes, and ferns in the shrubberies near the Palace speak volumes for the mildness of the climate.

The following description, although of no medical value, may give a faint idea of the peculiar features of this garden. The gate is close to the railway station, and after walking up an avenue of evergreen oaks and orange trees, you are taken in charge by a guide, who accompanies you during your round, which lasts, even moving quickly, nearly two hours. The ascent is first through woods of laurels, pines, cedars, and a variety of other trees, passing beds of camelias, palms, aloes, &c., until the highest point is reached, on which there is a summer house of red stone, built like an old fort, and curiously furnished. From the roof there is a fine view over the surrounding country, and in clear weather Corsica and the mountains of Spezia are visible. Pegli itself lies below, a collection of houses skirting the shore and backed by villas and gardens. On descending, one meets with all sorts of fanciful freaks, for example, a triumphal arch in white marble, the reverse of which represents most accurately a peasant's cottage. Then there are ruins, statues, a summer house, with mosaics and frescoes like those of Pompeii, and a table in the centre, on which stands a tea service in the Etruscan style. At one place you enter a boat and glide into a grotto, with roof and pillars of artificial stalactites, emerging on to a lake where there are a marble temple to Diana, an Egyptian obelisk, and a Chinese pagoda, with seats in the shape of cushions made of porcelain. On the lawn there is a swing, under which when you sit on it a jet of water covers you with spray. At

another place you enter a summer house and receive a shower bath from innumerable hidden jets, and as you run away are attacked by showers of spray, which spirt at you in all directions. In a temple of Venus you see yourself reflected fifty times in two looking glasses peculiarly arranged, and as you leave the temple your attention is directed to a cypress outside seen through a window, which appears side by side with its reflection in a mirror in the room. The visit ends with an inspection of greenhouses full of choice plants and flowers, and of shrubberies stocked with choice and rare palms and ferns.

The hills behind Pegli are covered with woods of the maritime and umbrella pines, which on the Pallavicini estate, as already mentioned, are intermixed with laurel, cedar, and various southern trees, among others the camphor tree. The shelter which Pegli enjoys is a local one, and within a mile to the eastward there is a valley running from north to south, which allows the descent of the cold winds on the portion of coast opposite its entrance. On the east and west there is a fair amount of protection from the hills which skirt the bend of the coast, but the *greco* or cold north-east wind makes itself felt severely sometimes near the shore.

The true north wind or *tramontana*, according to the Rev. J. L. Stayner, English chaplain at Pegli—who has kindly revised for this work my article in the ‘Medical Times’ of September 22nd, 1877, on Pegli and Cornigliano—does not touch Pegli at all, in fact, it goes clean over it so as to ruffle the sea first about half a mile from the shore. “Any day,” he says, “that a *tramontana* is blowing, you may look out to sea from Pegli, and notice a line starting out to

sea from the land half a mile or so to the *east*, and returning to shore between Prà and Voltri on the *west*. All within the line smooth and tranquil ; all without, black and white water.”

Meteorological Table for Genoa.

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	Totals.
Mean monthly temperatures, 1866-72*.....	62·6	55·3	48·8	45·2	47·2	51·2	55·8	64·1	—
Mean daily range between 9 a.m. and 3 p.m.*	3·4	3·1	2·7	2·7	3·2	3·8	3·6	3·6	—
Mean rainfall in inches, 1833-72†	8·47	7·61	4·86	4·39	4·27	3·59	3·48	3·41	40·08
Mean number of rainy days, 1833-72†.....	13	13	11	12	9	11	11	13	93
Predominating wind†.....	N.	N.	N.	N.	N.	N.	S.-E.	S.-E.	—

I cannot offer any thermometric observations with regard to the climate of Pegli, but there is not the slightest doubt that it is much warmer than most parts of Genoa itself, of which I give the mean temperatures in the accompanying table, except perhaps its western suburb. My lamented friend Dr Maund,‡ of Sandown, Isle of Wight, who practised for a couple of winters at Pegli, tells me it is quite common for snow to lie on the ground at Genoa, whereas it never does

* From the “Monatsbericht der k. Akad. der Wiss. zu Berlin,” given by Mr Home Douglas in ‘Searches for Summer.’

† From Dr P. M. Garibaldi’s ‘Stato Meteorologico della Città di Genova,’ per l’anno 1872.

‡ Dr Maund died, I regret to say, on August 11th, 1879, while this book was in the printer’s hands.

at Pegli. "When it snows at Genoa, there is usually warm rain at Pegli. The climate of Pegli may be looked on as about half way between that of Mentone and Pisa, both in temperature and dryness. Many patients who are uncomfortable in the extreme (*sic*) dryness of Mentone, improve much at Pegli."

The same view is expressed by a recent German writer, Dr Starcke,* who is most enthusiastic in favour of Pegli as a winter residence (l. c., p. 661). "This spot," he says, "is especially sheltered by its position, and to a certain extent shares in the advantages of both Rivas. The greater humidity of the air, while it does not reach the extreme degree that it does at Pisa, allows the growth of plants which one seeks for elsewhere in vain. In the depths of the numerous smaller valleys with their sparkling brooks, I found a great variety of ferns which I had failed in my search for in other places."

I shall not speculate on the special advantages of the climate of Pegli in disease. Dr Maund writes me that "the cases which it seems to suit most admirably are cases of asthma, and though its value in this affection is little known to the profession, many asthmatics resort to Pegli from various parts of Europe. An English gentleman resorted to Pegli for twelve winters and could live in comfort nowhere else, though he had tried many other places. To him Pegli, to a great extent, owes its church." Unfortunately, the word "asthma" (see also p. 133 *antea*) is so vague and indefinite, applying as it does generally to a symptom rather than a disease, that it does not help us much in sending cases to a par-

* "Kritische Erinnerungen an einen Winteraufenthalt im Süden," 'Berliner Klinische Wochenschrift,' Nos. 43, 44, 45, 1878.

ticular place, unless we know to what category to refer them. Probably, the so-called "asthmatics" of Pegli are persons with emphysema and chronic bronchitis.

Pegli is an excellent resting-place for invalids in the spring after leaving their winter home.

The town is already better equipped for the wants of visitors than Alassio. There are at least three good hotels. For invalids, only the Hôtel Gargini and Grand Hôtel de Pegli are to be recommended, as the Hôtel Mitchel, opposite the railway station, though in other respects excellent, has no south rooms with a sea view, nor any garden. The two former hotels face the sea, the Grand Hôtel being somewhat raised above the street. They both have good dining and drawing rooms, and comfortable bedrooms, and a garden at the back. The prices at Gargini's are a little the lower—about seven francs a day *pension* on the second, and eight francs on the first floor, but the rooms and the general style of the Grand Hôtel are better, and it is under the management of Herr Landry of Engelberg, in Switzerland. Its *pension* prices are twelve francs a day on the first floor, eleven francs on the ground and second floors, and nine francs on the third floor.*

The chief objection to living close to the sea at Pegli is the near proximity of the native population *en deshabelle*; a further objection, to which I formerly referred, namely, the hammering of the ship builders, which used to begin about daylight, need scarcely be taken into consideration. Mr Stayner

* In consequence of the visit of the Crown Princess of Germany to Pegli, it is possible that prices may be still higher this winter.

tells me that no ship building now goes on within sound of the Grand Hôtel. However, private rooms can be rented further from the sea—for instance, in the street at the back of the hotel gardens, not far from the railway cutting, and I believe also in one or two villas. Carriages can be hired near the railway station. There is an English church and a resident chaplain, and the proximity of Genoa renders the attainment of any extra comforts, such as may not be found in the hotels, a comparatively easy matter. Pegli has recently been connected with Genoa by a horse tramway in addition to the railway.

I think the evidence supplied at page 356 as to the average rainfall at Genoa, which for all practical purposes may be extended to Pegli, proves that much more rain falls there than at the health-resorts further west; but, owing to the slaty or schistous character of the soil, the latter soon dries.

Pegli would certainly be a much more desirable place for the winter than it is at present if the extensive grounds belonging to some of the villas already mentioned were not practically closed to the general public. For instance, an order has to be obtained every time the garden and woods of the Villa Pallavicini are entered, and no one can go a step without a guide, who is supposed to be necessary to prevent his doing mischief to the plants and summer-houses, &c. For this reason the resident at Pegli has his rambles in certain directions much restricted, and access is denied to many of the places which are most sheltered and best adapted for invalids.

I have the authority of Dr Starcke, however, for

saying, that there are valleys near Pegli which invalids can enter, and in which they can enjoy the contrast between the refreshing air of the latter and the sun and dust of the high road, while the restrictions in force in the case of the Villa Pallavicini do not hold good for the gardens of all the great Italian proprietors.

Cornigliano, about four miles from Genoa, a small fishing town of no internal pretensions, is mainly noticeable on account of the excellent hotel, the Villa Rachel, which has been opened there in the last five years. The town itself lies on the shore, and is fully exposed (as I can testify) to the north-east wind, but the hotel is more under the shelter of a ridge a few hundred feet high, and stands about a third of a mile from the sea. It is, however, inadequately sheltered from northerly winds, owing to the fact that a valley comes down from the north almost immediately behind it. Hence it cannot be so warm as Pegli, and I should fancy that it must be at least four or five degrees colder than Mentone. The same amount of rain probably falls at Cornigliano as at Pegli. On December 14th, 1876, camellias were in flower in the open air. The Villa Rachel faces south-west, and consists of the hotel proper, which has five storeys of equal height, and has lately undergone considerable alteration and improvement, and a wing in which some of the rooms have a south-easterly aspect.

There is a sheltered garden planted with orange, eucalyptus, and other trees, and well provided with seats. Internally the fittings are very good. There are capital *salons* (two) and a billiard-room in the English style, and plenty of newspapers are provided—a not unimportant point, for I have frequently

noticed that hotel-keepers who are stingy in supplying their guests with papers, are stingy in other respects, and *vice versâ*. The bedrooms are comfortable and well furnished, and since 1878 all the rooms have been provided with fireplaces, while the house itself is warmed by a *calorifère*. The closets have an abundant water-supply, and I have heard no complaints of bad smells. The food is good, and the number of complimentary expressions in the visitors' book, in English, German, and Italian, as well as the favorable reports I have received from English people in the hotel, all testify to the way in which things are managed. The *pension*, it should be added, is eight francs a day, and there is English church service in the hotel. There is also, I understand, a resident English doctor.

I have spoken at some length about the Villa Rachel because, though there are other warmer and more sheltered places available for mid-winter, it seems to be well adapted as a place at which invalids may rest, either in spring or autumn, on their way to or from the Western Riviera by way of Italy; and I can conceive that when the weather begins to get warm in the end of March or beginning of April, a change to the cooler climate of Cornigliano might be sometimes of service.

The attention of Madame Rachel Pellegrini, the proprietress, in cases of sickness I have heard very highly and gratefully spoken of, and it is only right that the medical profession should be aware of the existence of her establishment.

In concluding this chapter on the less known health resorts of the Western Riviera it may be well to state that not only Pegli and Cornigliano, but also

Alassio, are much frequented in summer, chiefly by Italians, as bathing-places. At Alassio especially there is as fine a sandy beach as could possibly be wished for, and at a later stage of the development of this latter sanatorium,* for which a more or less prosperous future may safely be predicted, English invalids also, and other for whom sea-bathing is advisable, and who do not object to the moderate heat of the early summer months, may perhaps also utilise the facilities which are thus offered them.

* While this sheet is passing through the press I learn that an English lady, Miss Harrison, and her sister, will open a pension for ladies at Alassio this autumn. She proposes to charge about nine francs a day.

CHAPTER XII.

THE HEALTH RESORTS OF THE EASTERN ITALIAN RIVIERA.

NO. I.—NERVI AND RAPALLO.

BESIDES Spezia itself, which will be treated of separately in Chapter XIII, the health resorts of the Riviera di Levante, that is, of the strip of coast which runs in a south-easterly direction from Genoa to Spezia, are as yet but two in number—Nervi and Rapallo. Nervi has been a recognised sanatorium for several years, but Rapallo is very little known, probably because it, until lately, lay out of the ordinary route of travellers, and was only accessible by *diligence*. Since the railway has been completed between Genoa and Spezia, both Nervi and Rapallo are on the direct line from Genoa to Leghorn, Pisa, and Florence. The Mont Cenis Tunnel now renders this part of the Mediterranean coast as accessible as the Western Riviera to comers from the north. From such places as Cannes, Mentone, and San Remo, Nervi and Rapallo are distinguished by their moister climate. Much more rain falls on that part of the coast where they are situated than further west, as the statistics presently to be adduced for Nervi will prove. M. Yeats Brown, Esq., Her Majesty's Consul at Genoa, informs me that Rapallo, owing probably to its situation on the north-north-east side of the high promontory of Porto Fino,

and the peculiar configuration of the hills at its back, is especially favoured by the rain, and the luxuriance of the vegetation there bears out his observation.

Nervi lies in $44^{\circ} 22'$ north latitude, and $6^{\circ} 42'$ west longitude, about six miles by rail south-east from Genoa. About half a mile to the west of the railway-station the coast-line, which previously ran nearly due south, turns round, so as to take a direction nearly due east. At the same time, the near hills—Monte Fasce, Monte Moro, and Monte Croce, outliers of the Apennines, bend round parallel to the shore, and form a steep protecting wall on the north, at less than a quarter of a mile from the sea. Of these the Monte Fasce is nearest to the sea. It is about 700—800 feet high, and covered to the top with olive woods. The Monte Moro and Monte Croce are higher, with bare peaks, and fill in the back ground behind Monte Fasce. Their extreme height is about 2500 feet.

At the foot of the Monte Fasce the carriage road from Genoa to Spezia is placed; and on either side, in straggling fashion, stand the houses, shops, &c., which make up the town of Nervi, a town, it should be stated, of about 8000 inhabitants. The most sheltered part, and consequently that most suitable for invalids, is nearly opposite the station, and a little to the right looking from the sea. Here the ground rises somewhat, and the street approaches very near the hill. At this point the chief hotel—the Pension Anglaise (so called on the *lucus a non lucendo* principle, because most of its visitors are Germans) is situated. It is a fine building, with four storeys facing due south, and with more than fifty south windows.

The *salle à manger* runs along the front part of the

first floor, on a level with the street, and outside it there is a large verandah, with a fine view over cypresses, pines, olives, &c., to the sea. Below the house there is a good-sized garden, in which I noticed some well-laden and healthy lemon trees, and into which you descend from the verandah by a flight of steps. Inside the hotel everything is in excellent style, and the management is very well spoken of. The great drawback is the narrow, sunless, draughty, and not over-clean street at the back, which is the only possible means of approaching the hotel. The north-east wind sometimes blows with considerable force through this street, so as to be a source of danger to the invalid as he leaves his warm room or the sunny garden. The prices at the Pension Anglaise are sufficiently high; and owing to the want of much competition, and to the fact that the demand for rooms is sometimes greater than the supply, applicants for admission have, it is said, been occasionally treated with unnecessary brusqueness. The *pension* on the first and second floors in 1877 was twelve francs, and on the third and fourth ten francs a day.

A second, and less pretentious, inn—the Hôtel Oriental—stands a little more to the west, nearer the sea and the station, close to the new road from the latter to the town. The rooms are smaller than at the Pension Anglaise, and some at least have no fireplaces. There is a garden in front. It has lately been taken by the owner of the Hôtel de Londres at Genoa, and it is, I hear from reliable authority (1879), well managed.

The ground between the main street of Nervi and the shore is nearly level—or, at any rate, only has a

gentle slope—until the railway (which skirts the shore) is passed, and then there is a rapid fall of thirty or forty feet or more to the sea itself. This level space is covered with the gardens belonging to the villas of some of the inhabitants of Nervi—of which that belonging to the Marquis Gropallo, close to the Pension Anglaise, is one of the finest,—and with orange and lemon orchards. Seen from the railway, Nervi with its gardens has a most picturesque appearance. Below the railway, and just before the rocky shore takes its deep descent into the sea, a path a few feet wide has been cut along the edge of the rock for the use of the coastguardsmen, and as it accurately follows the indentations of the coastline, and is absolutely protected from the north by high garden-walls, or by part of the rocky slope, or the railway embankment, while it gets all the southern sun in its full force, it is naturally an excellent promenade for invalids. Here they can walk or sit, or, if they choose, at certain points descend close to the sea, and enjoy a temperature of 64° to 68° Fahr., while in the High-street of Nervi the thermometer at the same time is not higher than 43° or 44° . Naturally great care is necessary to be provided with plenty of wraps to put on when returning from the shore to the town.

The neighbourhood of Nervi offers but a limited field for excursions, owing to the nearness and steepness of the high hills at the back of the town. There is no drive along the shore close to Nervi, though further west the road at some places nearly overhangs the sea. In fact, even for foot passengers the promenade above mentioned is only accessible by two or three narrow lanes which run down from the

main road between high walls, and pass by a small arch under the railway. The authorities have been very slow to promote the comfort of visitors at Nervi, and even as late as December, 1876, there was no carriage road fit for anything but a steam roller, to connect the railway station with the town. It is true that a broad road up from the station was partly finished, but it was so covered with a layer of gigantic "metal," that even to cross it by day on foot was to risk the chance of a sprained ankle, while after dark it was absolutely dangerous. On my arrival at Nervi in the evening, I had to traverse a series of narrow and most dimly-lighted lanes, in which it was difficult to make out the position of my guide, except by his footfall, in order to reach the hotel. On leaving, on another evening, after foolishly rejecting assistance to put me in the way to the station, I had the utmost difficulty in reaching the latter, after being precipitated into a sandpit, and undergoing other annoyances, on account of the abominable state of the roads, and the want of proper illumination. I understand, however, that in the interval that has elapsed since then the roads have much improved.

In addition to its protection by hills on the north, Nervi is, to a considerable extent, sheltered on the east by the high ground of the coast, as it bends round southward towards the promontory of Porto Fino. The north-east wind, however, as I have already mentioned, and as I can personally testify, is at times strongly felt. The north-west wind is also not unknown, and Dr Thilenius* (p. 52) says of it

* 'Nervi und sein Klima eine Klimatologische Skizze.' Wien, 1875. Braumüller.

“the most dangerous wind, and the wind which is always the most violent, is the cold, cutting, dry, and bitter north-west.” The prevailing currents in the part of the Gulf of Genoa in which Nervi lies, appear, however, to be from the south. The scirocco, or south-east wind, is of very frequent occurrence, and no doubt contributes in no small measure to rendering the climate not only rather damp but relaxing.

The average number of rainy days *per annum* at Nervi, is given by Thilenius (l. c., p. 46), I believe, on the authority of General Brocchi, as 106, of which 53·6 fall in the season from December to April inclusive. The mean monthly rainfall in winter, calculated from the observations of seven years, is given in the following table borrowed from Thilenius.

Nervi.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	Total.
Rainfall in							
inches ...	6·0 ...	4·88 ...	4·78 ...	3·23 ...	4·49 ...	2·20 ...	25·58

These figures indicate nearly as large a fall at Nervi during the six winter months as the average fall for the whole year at Nice, Mentone, &c.

We possess temperature observations for Nervi from 1849—1864. They were taken by General Brocchi, but how far they are reliable I cannot tell, knowing nothing of the arrangement of the instruments or hours of reading. The means for November and December are for thirteen years, and those for January to April for fourteen.

Nervi 1849—1864.

	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
Mean monthly						
temperatures ...	55·31 ...	47·84 ...	46·36 ...	47·8 ...	49·0 ...	58·1

Observations for the winter 1874-75 have been

also published by Herr Schulze.* He compared the daily temperatures at 8 a.m. and 2 p.m. at Nervi and Mentone. In the subjoined table I have calculated the mean for each month from his tables, and reduced them from Réaumur to Fahrenheit, and have also given the maximum and minimum temperatures for each month at the two places.

Winter of 1874-75.

	Nov.	Dec.	Jan.	Feb.	Mar.
Mean temperature at 8 a.m.—					
Nervi	56·0°	52·0°	51·0°	44·0°	49·0°
Mentone.....	54·0	48·2	50·5	44·5	49·8
Mean temperature at 2 p.m.—					
Nervi	59·5	56·5	58·0	50·3	55·4
Mentone.....	59·2	53·6	56·0	49·0	57·5
Maximum temperature—					
Nervi	70·5	66·0	66·0	61·0	64·0
Mentone.....	70·5	64·0	64·0	55·0	66·0
Minimum temperature—					
Nervi	44·0	41·0	44·0	36·0	44·0
Mentone.....	46·0	42·0	46·0	36·0	48·0

In addition to the above, Dr H. J. Thomas, of Baden-Weiler, has published some statistics about the climate of Nervi ('*Berliner Klin. Wochenschrift*,' No. 22, 1877, s. 317), a short abstract of which I append. The mean temperature in the winter of 1876-77 was as follows at 8 p.m. :

Dec.	Jan.	Feb.	March
51·5° Fahr. ...	49·3° ...	47·2° ...	47·4°

The lowest readings were taken in the first fortnight of March, 1877, when 35·2° was noted on March 2nd, and 35·8° on March 11th. The mean diurnal variations were :

* 'Die klimatischen Curorte der Riviera, mittel und- Unteritaliens.' Frankfurt-a-Main, 1875.

		Dec.		Jan.		Feb.		March.		April.
In 1875-76	...	4.5°	...	5.2°	...	4.6°	...	5.2°	...	4.3°
In 1876-77	...	4.1	...	5.4	...	7.0	...	6.5	...	—

The mean relative humidity, measured by an August's psychrometer, gave the following results :

		Dec.		Jan.		Feb.		March.		April.
In 1875-76	...	64.0°	...	60.0°	...	64.8°	...	66.7°	...	72.7°
In 1876-77	...	75.0	...	63.2	...	61.4	...	68.5	...	—

—total saturation being represented by 100. According to Thomas, the air of Nervi is *moderately dry*, and not, as has been generally asserted, moist. If Dr Thomas, however, had been at Nervi in the winter of 1874-5, he would have told a different story, for according to Thilenius (l. c., p. 44) "it rained almost incessantly for three months day and night, and the air was so saturated with moisture that there was scarcely any difference between the wet- and dry-bulb thermometers." The following table, which I am able to compare with similar observations of my own for Mentone, shows that considerably more rain falls at Nervi than at the latter health resort, even in comparatively dry seasons like those of 1875-77.

Number of days.

1876-77.	Clear, or partly so.		Cloudy.		Rainy (including slight showers).	
	Nervi	Mentone	Nervi	Mentone	Nervi	Mentone
December.....	13	10	18	9	16	12
January	21	17	10	9	9	5
February	21	22	7	4	5	1 (few drops)
March	20	13	11	8	18	9
Totals.....	75	62	46	30	48	27

The sixty-two clear days credited to Mentone were those which were absolutely free from cloud.

In spite of the want of really scientific observations on the temperature of Nervi, there is no doubt of the mildness of its climate. The abundant subtropical vegetation, and the growth of standard lemon trees is a proof of this. An Englishman whom I met at Nervi, and who had spent some time there as well as two or three winters at Mentone, told me that he believed Nervi was the warmer of the two places, and a writer in the 'Queen,' August 25th, 1877, under the *sobriquet* of "Hirondelle," speaks of it as "perhaps too relaxing for any but absolute invalids," though I do not see why a relaxing climate should be good even for them.

In spite of its raininess, the soil of Nervi—clayslate—is favorable to its rapid drying. There have been, however, complaints that the drinking water is not as good as it should be. For amusements of all kind, except rod-fishing, Nervi presents little opportunity. True, Genoa is within easy reach, but Genoa in winter and spring, lying open as it does to northern down-draughts, is no place for invalids, and its nearness is rather a danger than an advantage. Invalids who go to Nervi to spend the winter should trust to their own resources for amusement, and take a good supply of books with them. At present, however, Nervi is rather a German than an English colony, and this point deserves consideration in sending patients there, owing to the different habits of the two nationalities. Villas and sets of rooms in flats are difficult to find, and the tendency of the local proprietors, is to demand such exorbitant prices for building land, that, as Thilenius says, "the houses built on it could

only be made to pay by asking such a high rent that no foreigner would pay it." He tells an amusing anecdote of one of these men, of whom he asked the price of a house. The owner's answer was, "I don't mind selling it you, but I tell you beforehand, it isn't worth what I ask for it." All things considered, the social advantages of Nervi are at present much inferior to those of Cannes, Mentone, or San Remo.

There is still less to be said about Rapallo than about Nervi, and in the following remarks I scarcely pretend to do more than call attention to its existence, and to the possibility of its future development. It is a town of 4000 or 5000 inhabitants, built on the north side of a tiny bay about twenty-two miles south-east of Genoa, in latitude $44^{\circ} 15'$. The bay, which has quite a narrow entrance, is much shut in by two promontories on the west and east, and by a semicircle of hills which connect them on the north. The near hills are covered with olive, chestnut, and fig trees. The more distant hills are highest towards the north-east, and may reach 2000—2500 feet or more. One or two streams run down from them to the sea, and on the left bank of one of these, not far from the sea to the east of the town, stands the (at present) only available hotel, a great square-looking building, an old palazzo—the Hôtel de l'Europe. It has a small garden, with orange-trees in front separating it from the main road, which crosses the stream by a bridge very near the sea. The accommodation is not great, and there is not room, I should think, for more than thirty or forty people, but everything appeared very comfortable at the time of my visit. There is a good *salle*

à manger, and a large *salon* looking over the sea; but there are unfortunately only six south bedrooms, the remainder having an east and westerly aspect. The best rooms are on the first and third floors, those on the second having low ceilings. *Pension*, first floor eight francs, second floor seven francs and a half, and third floor ten and nine francs. The wine of the country is good and moderate in price, and the feeding is well reported of. The landlord is extremely civil and attentive. There was in the winter of 1876-77 an English chaplain there of rather High Church proclivities, who performed service in a small room twelve feet by ten, lighted by a door window, and tenanted by a dozen chairs, "three times a day," as I was told, "in the week, and all day on Sunday!" but this last season, 1878-79, there has been no English service. At Rapallo as at Nervi, the inhabitants, or rather the chief proprietors, are not at all anxious to encourage the advent of visitors; and at the latter place I was told that impossible prices were asked for land on which to build a more commodious hotel, chiefly to prevent the increase in the cost of living which the presence of many strangers would entail.

The town of Rapallo is much like many other small Italian coast towns. There is one long main street, with a number of small back streets, and a kind of square, or market-place. Part of the main street has arcades on either side. The town is pretty clean, and is well paved. The inhabitants pass their time, the men at sea in various parts of the world much of the year, and the women in making a coarse kind of lace with cushions and bobbins. There are well-cultivated gardens and fields round the town,

especially to the north-west; and there are a number of pleasant walks inland in various directions, as well as along the coast road to the east, parts of which are planted on either side with olive trees in a way new to me. The soil is clayslate, or something very similar, and appears to dry rapidly. Rapallo is a good place for flowers in spring, and I saw a fine specimen of the *Pteris cretica*, which had just been picked wild (December) in the neighbourhood. The beach at Rapallo, unlike that of Nervi, is sandy; and, from the sheltered position of the bay, there would probably be excellent opportunities for boating. On the whole, if only there were more accommodation and greater comforts, Rapallo is a place which might probably be safely recommended to that class of invalids with whom a warm and rather moist climate has been found by experience to agree. No doubt it, in some respects, resembles Pisa; but it has an enormous advantage over that dullest of dull places, in its cheerful situation and its ready accessibility. I may add that I have heard of one lady who has spent three winters at Rapallo, and has derived great benefit from doing so.

I may mention, in conclusion, the fact of the existence of Santa Marguerita, a small and extremely picturesque town between Rapallo and Nervi, close to the sea. I have no personal knowledge of it, except from passing it in the train, but it is said to command some of the finest scenery in Italy. There is a new hotel, which is stated to be large and clean, and in the hands of obliging proprietors, ready to adapt themselves to the requirements of English visitors. The cooking is fair, and the charges are moderate.

For the benefit of those who have had some education in living abroad, Mr Brown, of Genoa, tells me that the very best of the climate of the Riviera di Levante is to be enjoyed in the villas from Nervi to Camogli, that is to say, about the villages of Bogliasco, Pieve di Sori, Sori, Recco, and Camogli. Quinto and Quarto, nearer Genoa, are also good, the cold of Genoa only beginning to be felt to the north-west of Quarto. These places, as well as Santa Marguerita, are, however, at present only to be recommended to persons who have acquired some previous knowledge of Italian life, and some acquaintance with the language, but from these they deserve a trial.

CHAPTER XIII.

THE HEALTH RESORTS OF THE EASTERN ITALIAN RIVIERA.

No. II.—SPEZIA.*

ALTHOUGH up to the present time the reputation of Spezia has mainly depended on the possession of one of the largest and most secure harbours in Europe, as well as of a powerful arsenal, yet there is no doubt that its position, and the comparative mildness of its climate, give it a right to a brief mention among the possible health resorts of the Riviera di Levante.

Another reason for referring to it here is, that since the completion of the railway between Genoa and Florence, Spezia has become a place easily accessible from the north of Europe. The town is situated at the north-west angle of a deep bay or gulf, the eastern side of which is formed by the mainland, and the western to a large extent by a rocky promontory about four miles long, which terminates due south of Spezia itself, at the picturesque little town of Portovenere. This side of the gulf is also further

* This chapter owes its existence almost entirely to the kindness of my friend Dr Crucknell, Fellow of Oriel College, Oxford, who has spent the last two winters at Spezia. The descriptive part is practically all his, and, except in introducing the references to one or two German works, my own task has been little more than that of editor.

protected by the Isola Palmaria, an island which is only separated from Portovenere by a narrow channel. Spezia is a town of about 20,000 inhabitants. It consists of an old and new part, the latter consisting of handsome buildings and a spacious quay. On the south-west side are the famous arsenal, the dockyard in which the monster ironclads *Dandolo* and *Duilio* were built, and a large military exercising ground or Piazza d'Armi. The arsenal was designed and constructed by Admiral Chiodo, whose statue occupies a prominent situation in the town. Since 1864 great activity has been displayed by the Italian Government in enlarging and improving the arsenal and dockyard, the latter of which is now one of the most complete in Europe.

These facts, however, have little interest to seekers after health, and no doubt as a health resort, Spezia is directly injured by the bustle and noise inseparable from a place devoted to workshops and to the multitudinous requirements of naval and military establishments. Happily, it is easy to escape from all this into quiet valleys or sheltered bays; and the east side of the town, away from arsenal and docks, is particularly favorable for the walks and excursions of invalids.

That the demands of visitors are as yet by no means great, is shown by the fact that Spezia does not boast many hotels. The one chiefly frequented by English people is the *Hôtel Croix de Malte*, which stands on the sea shore, a little to the east of the town, from which it is separated by some public gardens and a plantation. It is one of the largest in North Italy, and has eighty-three bedrooms, a large and lofty dining room, a *salon*, a smoking room,

and a fine entrance hall fitted up with seats and marble tables for the visitors. In front there is a garden overlooking the sea and planted with shady trees. The *pension* on the highest floor for a single person is eight francs per diem in Italian notes ; on the ground and first floors from nine to ten francs. English church service is held in the hotel in winter. Immediately to the east of the hotel, a spur of the neighbouring hills comes right down to the coast, and divides the valley of Spezia into two parts, a western and an eastern. The western side is terraced nearly to the crest and planted with olive trees, and in some parts with corn. The eastern side is subalpine, and its mountains are covered with pine forests. From the terrace on which stands the church of Marinasco, a village at a short distance from Spezia on the hill, there is a fine view of the town, the gulf, and the hills bordering it on the east and west, with the pyramidal forms of the Carrara Mountains far to the east. This point is easily reached by the Salita dei Capucini, which branches off from the Via del Torretto behind the Hôtel Croix de Malte, and the return to Spezia may be made by a steep descent which leads into the high road from Genoa.

While the western coast of the Gulf of Spezia is rugged and hilly, the northern and eastern portion for about three miles is comparatively level. This renders it a good walking place for invalids, one of whose favourite short excursions is along the carriage road which extends round the coast to the east, and which ends at the now disused arsenal of San Bartolomeo. From this road there is a good view of the picturesque village of Villa Rano seated on a hill to the east. The valleys of the Migliarina at the northern

extremity of the eastern half of the Spezia Valley are also excellently adapted for invalids, especially at that time of the day when the sea breeze is blowing freshly.

A favourite excursion from Spezia by water is to Lerici and San Terenzo, about six miles south-east of Spezia, on the Bay of Lerici. These two towns occupy respectively the southern and northern extremities of the bay, and each has a castle built on a promontory projecting into the sea. A steamer leaves the pier at Spezia every morning at noon, making the passage to Lerici in three quarters of an hour and returning at 4 p.m., calling at San Terenzo if signalled. The objects of interest at Lerici are Shelley's Villa and the castle previously mentioned. In the neighbourhood, at Pertusone, there is a lead mine, the property of an Englishman, Mr Henfrey. Lerici is famous for its flowers and its olive trees. It is in a most sheltered situation, and it remains in sunshine an hour after the sun has set at Spezia itself.

To the north-west and west of Spezia there is a chain of high mountains, of which Monte Bergamo, or dei due Fratelli (2109 feet), is the most distant. It may be ascended from the Genoa road, which runs under its north-eastern flank. Nearer to Spezia is Monte Parodi, which has a carriage road to the top, and is therefore quite easy of ascent. From the summit a panoramic view is obtained of Spezia, the gulf bordered by hills and mountains, and all the surrounding country. The hills nearest Spezia on the west rise abruptly from the coast, and extending southwards terminate at the rocky promontory of Monte della Castellana (1000 feet). The corresponding promontory on the opposite side of the gulf near

Lerici is named Maralunga, and from it an artificial subaqueous dyke visible here and there above water extends across towards Portovenere, a town already mentioned, lying at the foot of Monte della Castellana, at the extreme end of the western side of the gulf. This dyke prevents all passage of large ships into the harbour of Spezia except at its western extremity, where there is a deep channel protected by a strong fort, under whose guns they are forced to enter. In a cleft of the mountains on the western side of the gulf of Spezia, is the village of Biassa, whose inhabitants are supposed to be of Moorish origin. Biassa being only a short distance from Spezia, is a favorite excursion with visitors.

From the eastern side of the valley of Spezia, a low pass leads in an easterly direction into the Lunigiana, a district so named from Luna, once a seaport, but now, probably owing to the recession of the sea, several miles inland. The Lunigiana is now the bed of the great Vara river, which traverses it by three deep channels. These unite above Sarzana, the principal town of the district, and join the river Magra, which descends from the mountains above Pontremoli, a large town at the foot of the Cisa Pass, which leads over into Parma. Sarzana is on the main line, from Spezia to Florence; and at Avenza, the next station to the south, visitors to Carrara leave the train, and finish the journey by carriage.

This short account of the neighbourhood of Spezia will serve to convey an idea of the interesting character of the country.

The meteorology of Spezia has not been much studied, but there is no doubt that the climate is a mild, somewhat moist one. "The town and gulf," as

Sigmund says ('Südliche klimatische Curorte,' p. 225), "are quite open to the south and south-east, while completely protected on the north and west by a series of steep and lofty (limestone) mountains, whose numerous spurs reach quite down to the level of the sea." The prevailing winds are southerly, the east winds are said to bring fine weather, and the north-east, according to Dr Crucknell, is only cold when there is snow on the Carrara mountains. The only accurate series of observations as to temperature which we possess, are those of Dr Thomas, quoted by Sigmund from his 'Beiträge zur allgemeinen Klimatologie und Mittheilungen über Cadenabbia, Lugano und Spezia als klimatische Curorte,' Erlangen, 1873, and they are only for one season, 1872-73, October to March inclusive. His monthly means were as follows :

Oct.		Nov.		Dec.		Jan.		Feb.		Mar.
62·9	...	56·8	...	52·8	...	50·5	...	47·5	...	57·0

But no stress can be laid on the results of a single season. The mean relative humidity for January, February, and March, was high, 79·4, 78·1, and 73·6 respectively, with an absolute maximum of 97·0 and a minimum of 37·2 during that period, but the season is represented as a particularly rainy one. From October to March there were 63 very fine days, 55 days with sun and cloud, 64 cloudy, 74 rainy, and 38 windy days. The rainiest month was December, the finest March, the months with most wind were October and December. My friend Dr Crucknell reports 47 sunny days, 36 rainy days, 2 days on which snow fell, and 16 days of rough wind, of which 12 were scirocco or south-south-east, during the months of December, 1878, and January and February, 1879.

He tells me that in the winter of 1877-78, there was less rain and many more days of sunshine than in 1878-79. In any case, those who winter at Spezia must in average seasons expect to encounter more rain than on the central portions of the Riviera di Ponente, and Sigmund no doubt sums up the character of the climate very correctly (l. c., 229) in calling it "a moderately warm, moderately moist, calm, and tolerably equable *mild climate*."

The native population of Spezia is a healthy one, and considering the number of foreign workmen there, and the number of accidents which must occur in such large establishments, Sigmund does not consider the current mortality of 35 per 1000 very high. He has had the opportunity on two occasions of inspecting the Government workshops and barracks officially, and he reports most favorably of the results. "The workmen," he says, "mostly foreigners, appeared healthy, and the soldiers of the marine and artillery had a really splendid appearance." Among the lower classes—too often ill-fed, ill-clothed, and ill-lodged—scrofula, rickets, phthisis, &c., of course occur. Dr Cruicknell visited the City Hospital several times in the winter of 1878-79, and was told that out of its 200 beds more than 50 or 60 were seldom occupied. Mr Greenham, H.B.M. Consul, also informed him that he had lived at Spezia fourteen years, and had seldom heard of a case of serious illness. The appearance too of the peasants coming in from their farms to attend mass at the cathedral cannot help impressing any one who sees them with their healthiness. The vegetation of Spezia and its neighbourhood largely consists of olive woods and vineyards. The lemon, according to Sigmund, requires protec-

tion ; in other respects, the same sort of plants are met with there as on the Western Riviera. The drinking water, which is brought from the hills into the town, is rather soft, and Sigmund recommends strangers to mix a little red wine with it before drinking it. The wine of the country is good.

In summer and autumn Spezia is frequented by the Italians as a bathing place, for which it is well adapted from its sheltered position, its sandy coast, and the temperature of the water of the bay, which is higher than that of the Mediterranean as a whole. It is possible to bathe there even as late as November.

From this brief sketch it will be seen that the Gulf of Spezia possesses a combination of various natural advantages, both from an artistic and a sanitary point of view, which renders its climate worthy of further study, and its shores worthy of the attention of travellers and of some classes of invalids. The special indications for Spezia as a health resort are at present difficult to define, and in selecting it the moisture of its climate must be distinctly borne in mind.

With Spezia I close these sketches of the health resorts of the two Rivieras.

APPENDIX I.

THE WINTER OF 1878-79 ON THE RIVIERA.

THE past winter will be long remembered in Northern Europe and the British Isles for its unusual severity. Mr G. J. Symons, F.R.S. ('The Times,' February 2nd, 1879) states that January, 1879, was the coldest January for at least twenty-one years, and he believes for forty-one years, and that it followed a December also, with one exception, the coldest for twenty-one years; at any rate for London and Greenwich. November, 1878, was also very cold, and it had the lowest average *maximum* temperature with two exceptions, and the lowest average *minimum* temperature with four exceptions, of the whole period of twenty-one years from 1858. The mean temperature of November and December, 1878, and January, 1879, taken together, was "not only five degrees below the average, but also lower than in any previous year out of the twenty-one."

Mr Symons gives tables of mean (*average*) maxima and minima, and of mean temperature for each November, December, and January, during the last twenty-one years; but for my purpose it will be sufficient for me to compare the general means of the whole period with the mean maximum, mean minimum, and mean temperature of November and December, 1878, and January, 1879. This is done in the following table, a glance at which will show the remarkable character of the late winter.

TABLE I.

	November.	December.	January.
Average maximum, 21 years' period	48·2	44·1	43·6
1878-79.....	44·9	38·2	35·8
Average minimum, 21 years' period	36·8	34·9	34·1
1878-79.....	34·8	29·5	28·7
Mean temperature, 21 years' period	42·5	39·5	38·9
1878-79.....	39·9	33·9	32·2

TABLE II.

	Cannes (<i>a</i>).				Mentone (<i>b</i>).				London.
	Mean max.	Mean min.	Mean temp.	Absolute min.	Mean max.	Mean min.	Mean temp.	Absolute min.	Mean temp.
Nov. 1878 ...	56·5	43·0	49·7	34·0	60·68	40·68	50·68	34·0	39·9
			50·1(<i>c</i>)				52·5(<i>d</i>)		
Dec. 1878 ...	50·6	38·0	44·3	28·0	52·9	35·1	44·02	29·0	33·9
			43·9				45·3		
Jan. 1879.....	55·0	40·3	47·65	32·0	56·1	38·4	47·2	29·5	32·2
			48·6				50·45		
Jan. 1879, Hyères (<i>e</i>)	54·9	36·87	45·88	25·0	—	—	—	—	—
Jan. 1879, Bor- dighera (<i>f</i>)	56·0	44·8	50·4	36·0	—	—	—	—	—
Jan. 1879, San Remo (<i>g</i>)...	—	—	49·6	36·5	—	—	—	—	—

Authorities:—(*a*) Dr de Valcourt. (*b*) Mr J. B. Andrews. (*c*) italics, Dr Marcet. (*d*) italics, Dr Farina. (*e*) Dr Griffith. (*f*) Dr Daubeny. (*g*) Mr F. Hamilton.

In Table II, which precedes, I have calculated and arranged the mean maxima, mean minima, and mean temperatures, with the absolute minimum in each case, for Cannes and Mentone during the months of November and December, 1878, and January, 1879, with the same data for Hyères and San Remo, for January alone, and with the mean temperature and absolute minimum only for January, 1879, at Bordighera. The observations at Hyères and San Remo were specially taken for me by kind friends.

In Table III I have compared the mean monthly temperatures for Cannes and Mentone from November, 1878, to April, 1879, with the general monthly means of several past seasons as given by Marcet and Andrews.

TABLE III.—*Mean monthly temperatures at Cannes and Mentone for the winter season 1878-79, compared with the collective means of past years.*

		Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	Authority.
Cannes,	1878-79	50·1	43·9	48·6	49·9	52·2	54·1	} Marcet.
	Collective mean, 1874-78	54·4	50·9	49·3	48·4	50·7	56·0	
Mentone.	1878-79	50·68	44·02	47·2	49·6	51·5	53·4	} Andrews.
	Collective mean, 1873-78	54·1	49·68	49·05	48·63	50·71	56·69	

Both Table II and Table III bring out some interesting points with reference to last winter.

(1) The mean temperature of all the places recorded was more than *ten* degrees Fahr. higher than

that of London for the same period, and in January, 1879, the coldest month of the winter in England, the excess in favour of the Mediterranean coast was for some of the health resorts, as much as fifteen or sixteen degrees.

(2) The coldest month of the season in England was January, on the Riviera December.

(3) The greatest depression below the mean temperature of previous years, both at Cannes and Mentone, and doubtless at the other health resorts, occurred in December, and the next greatest in November, 1878; February and March, 1879, exhibited mean temperatures *higher* than the general mean, while April again was rather colder than the average.

As far as temperature goes, therefore, on the whole, except in the early part of the season, and for a day or two occasionally in April and May, there was not much to complain of on the Riviera in the season 1878-79, and my previous statements as to its climate in Chapters I and III certainly hold good.

The special peculiarity of the past season on the north Mediterranean coast was *excessive rainfall*. The "oldest inhabitant" scarcely remembered such a wet season, and it is very unlikely that a similar one will occur again for many years. About forty inches of rain fell in the period between October 1st, 1878, and April 30th, 1879; roughly speaking, at least ten inches more than the average annual rainfall.

Table IV gives the monthly fall in inches and hundredths of an inch, with the number of rainy days (except in the case of Genoa) for the principal health resorts of the Riviera.

TABLE IV.—*Winter of 1878-79.—Comparative rainfall and rainy days.*

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Authority.
Toulon*	$\frac{1.78}{8}$	$\frac{7.04}{16}$	$\frac{3.24}{14}$	$\frac{2.64}{7}$	$\frac{0.94}{5}$	$\frac{1.65}{3}$	$\frac{3.41}{11}$	$\frac{4.86}{11}$	Government Reports.
Cannes	$\frac{4.34}{10}$	$\frac{8.35}{13}$	$\frac{3.79}{12}$	$\frac{4.46}{10}$	$\frac{3.94}{15}$	$\frac{7.73}{8}$	$\frac{7.50}{16}$	—	"F. M. S." in the 'Times' newspaper.
Nice	$\frac{8.20}{9}$	$\frac{5.54}{14}$	$\frac{3.60}{14}$	$\frac{2.45}{8}$	$\frac{3.65}{9}$	$\frac{4.68}{5}$	$\frac{7.54}{13}$	$\frac{7.24}{14}$	Dr Niepce, fils.
Mentone	$\frac{10.43}{14}$	$\frac{6.95}{14}$	$\frac{2.84}{16}$	$\frac{2.17}{9}$	$\frac{3.92}{10}$	$\frac{4.57}{9}$	$\frac{8.10}{17}$	—	J. B. Andrews.
Bordighera	No return			$\frac{1.40}{9}$	$\frac{3.36}{10}$	$\frac{6.0}{10}$	$\frac{8.31}{17}$	$\frac{7.84}{16}$	F. Fitzroy Hamilton.
Genoa, rainfall only	7.39	10.76	3.54	2.40	5.77	7.47	9.36	—	Government Report, per H.M. Consul.
Hyères, January only	—	—	—	$\frac{5.11}{15}$	—	—	—	—	Dr Griffith.

* The upper figures of the fraction indicate rainfall in inches; the lower the number of rainy days.

I am specially indebted to the friends whose names are given in the right-hand column, for most of the materials of which it is compiled. The figures for Toulon are unfortunately not quite accurate, as on several occasions when rain certainly fell, the Government reports contained no return.* This will probably account for the great discrepancy between the figures for Toulon and Hyères in January, 1879.

Careful examination of the table will show some curious inequalities in the distribution of the rainfall at the different health resorts in different months. The general means already furnished in the chapters devoted to the individual health resorts, can be referred to by any of my readers who wish to compare last season with previous ones.

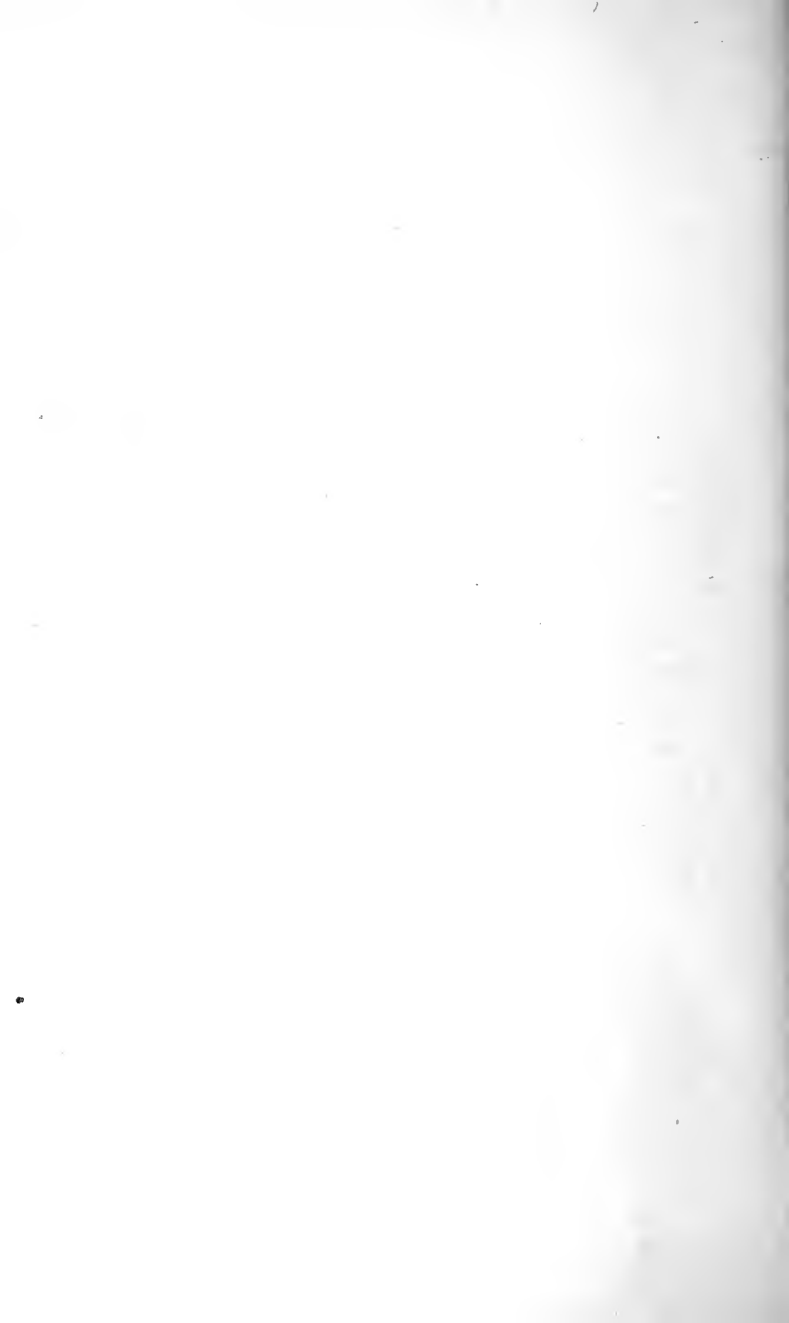
APPENDIX II.

Meteorological Table for Marseilles, 1823—1869, according to Dove.†

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Total.
Mean monthly temperatures	62·2	50·4	44·3	47·0	45·4	48·1	54·0	60·3	—
Mean monthly rainfall in inches.....	3·60	2·74	1·70	1·62	1·62	1·32	1·40	1·86	15·86

* The amount of rain at Toulon for November, 1878, and April, 1879, given in the table at p. 194, is somewhat too small. The figures on p. 388 are as correct as the Government Reports permit.

† Given by Mr H. Douglas in 'Searches for Summer' (p. 75).



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